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IN DEPTHSECURITY

Risk& Reward

Security risks come in many forms, from disgruntled employees to passwords left on Post-it Notes in plain view. This In Depth report — the first in a monthly series on crucial IT topics — identifies the dangers you might overlook, the technologies that could protect your business and the kind of people you'll need to pull your company out of a tough situation.

A FEW HIGHLIGHTS

- Cyberattacks by insiders
- The top 10 security mistakes
- A deluge of false alarms from intrusion-detection systems
- Computer forensics that involve more than just hackers

See In Depth, pages 33-60.

ONLINE

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PRIVACY ACT COSTLY IN FINANCE SECTOR

Firms spend millions to recast databases

BY LUCAS MEARIAN

Even as federal regulators began enforcing the massive reforms of the Financial Services Modernization Act last week, companies were still scrambling to create automated systems to ensure their compliance with the new privacy regulations.

Also known as the Gramm-Leach-Bliley Act, the legislation requires financial firms to let their customers opt out, or choose not to let their personal information be shared with outside companies.

Financial firms have spent more than $400 million compiling privacy policies and identifying partners and third parties with whom they share data, according to Needham, Mass.-based TowerGroup. The total cost of compliance with the new legislation could swell to three times that figure and could skyrocket to Y2k spending proportions if Congress

Privacy, page 69

MICROSOFT CASE MAY YIELD CHOICE

Some apps could be separated from OS

BY PATRICK THIBODEAU
WASHINGTON

The recent U.S. Court of Appeals decision in the Microsoft antitrust case could ultimately give corporate end users the ability to pick and choose among some Windows applications that the company plans to integrate with future versions of the operating system, say some legal and industry analysts.

ANTITRUST

"Just think about the extent to which future Microsoft planning includes writing software code for collaborative applications into the Windows [operating system] itself," said Herb Hovenkamp, an antitrust expert and law professor at the University of Iowa in Iowa City. "I think Microsoft is going to have to rethink that whole strategy."

The case is still unsettled, and its ultimate impact, if any, on Microsoft Corp.'s operating system

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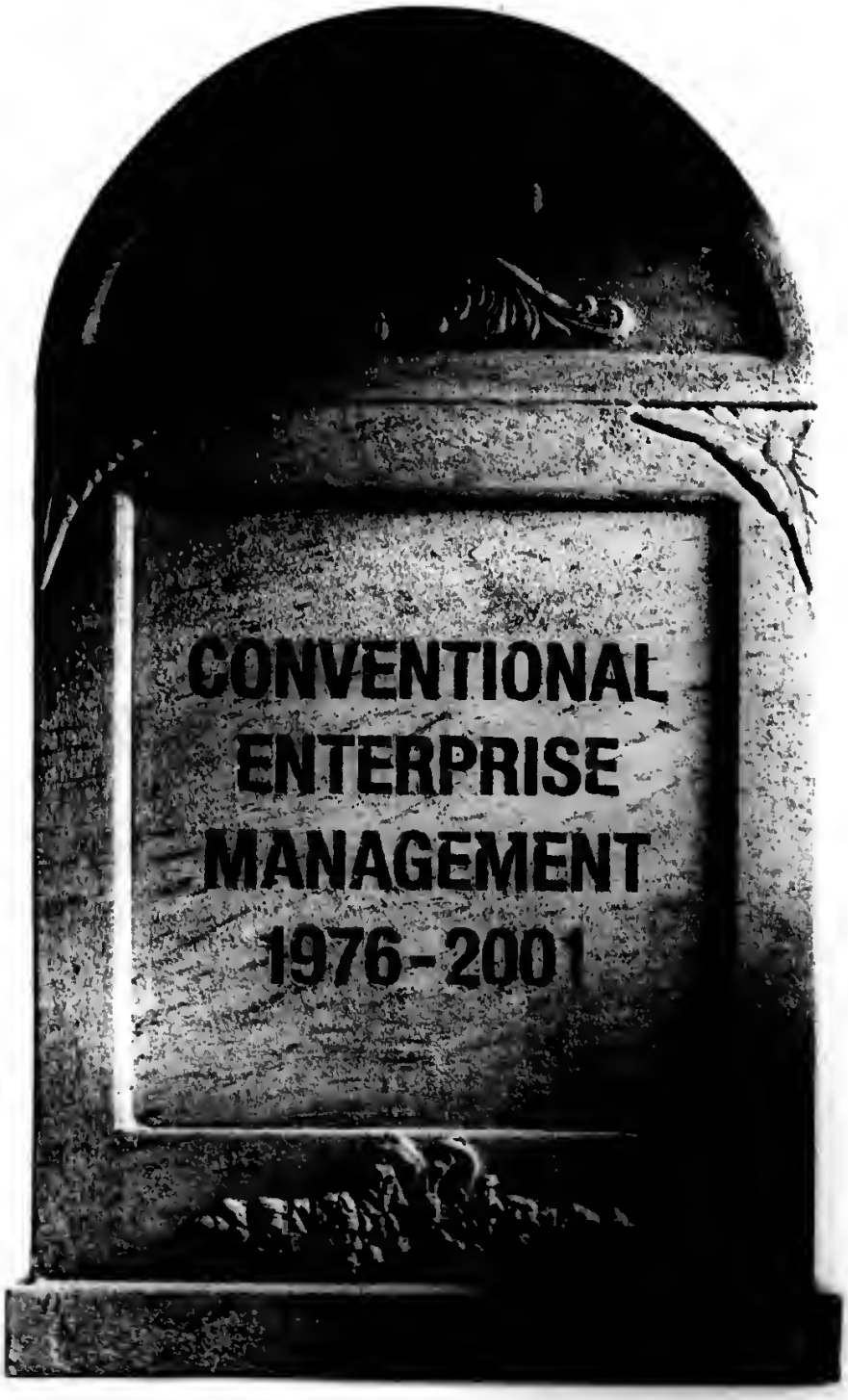
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www.computerworld.com/careers

House Majority Leader Attacks HIPAA

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IN DEPTH SECURITY

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The first in Computerworld's new, monthly In Depth series examines the risks and the rewards of e-commerce, and how to minimize one while maximizing the other.

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Sometimes the greatest threat comes from the enemy in your office, not the one at the gate. But there are ways to defuse even the worst potential offenders.

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XML is so popular and such an obvious way to make difficult data connections that few suspect that it may be as dangerous as it is valuable.

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Some precautions aren't that complicated, but fixing simple problems is harder than you think.

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The European Union just signed a treaty standardizing cybercrime laws across the continent, and it won't take long for U.S. companies to feel its effect.

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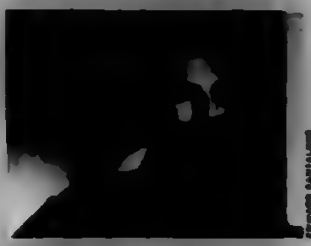
The P3P protocol may not make Web surfing really private, but it can give customers more control — and create headaches for you.



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Capitol Crunch

Dozens of bills are making their way through Congress to change the way IT handles privacy, spam and a raft of other issues. See which ones are most likely to pass. **www.computerworld.com/indepthsecurity**

Private Investigation?

Companies that share private IT data with the feds risk having it released to the public. Some are trying to change the Freedom of Information Act to protect IT while still cooperating to nail the bad guys.
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Picking Your Targets

Even the most activist IT operation has to decide where to put its attention; here's a rundown of what the government is up to that may affect you.
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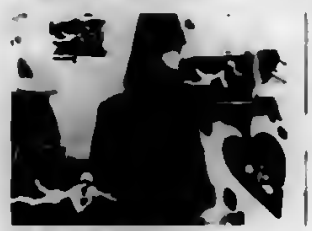

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AT DEADLINE

Shell, IBM Ink $100M E-Business Apps Deal

In a cost-cutting bid, The Hague-based Royal Dutch/Shell Group will set up three worldwide hubs to standardize and consolidate its global IT applications infrastructure. The three data centers, to be located in Houston, The Hague and Kuala Lumpur, Malaysia, will provide the core infrastructure for Shell's range of enterprise resource planning and e-commerce applications. Shell chose IBM as the prime hardware provider for the centers under a five-year, $100 million agreement. IBM will supply eServer systems, enterprise storage servers and technical support and services.

Ditmore Surfaces At Bank One

James Ditmore, former CIO at Omaha-based Ameritrade Holding Corp., has landed a job as Bank One Corp.'s chief technology officer for infrastructure and operations. The Chicago-based bank announced last week that the 41-year-old IT veteran will join the company on July 16 to oversee service levels for systems availability and operations and define the company's technology architecture and standards. Ditmore will also be responsible for network, enterprise computing and desktop/mobile platforms.

Short Takes

CHINA NATIONAL COMPUTER SOFTWARE AND TECHNOLOGY SERVICE CORP. will build a software and hardware encryption module for MICROSOFT CORP.'S Windows XP Professional Chinese edition. . . . Schaumburg, Ill.-based MOTOROLA INC. has agreed to sell its Multiservice Networks Division to PLATINUM EQUITY in Los Angeles. . . . RADIOSHACK CORP. in Fort Worth, Texas, has agreed to purchase Microsoft's 25% minority interest in RadioShack.com LLC for $88 million in cash. The move gives RadioShack 100% ownership of RadioShack.com.

Vendor Sues User in 'Man Bites Dog' Case

Analysts say slow economy may spur more cases like that involving CSC and Saks

BY JULEKHA DASH

TECHNOLOGY consulting firm Computer Sciences Corp. (CSC) has filed a lawsuit against retailer Saks Inc. accusing it of misappropriating trade secrets and violating the terms of an IT services contract signed by the two companies early last year.

Analysts described the suit, which was filed June 18 in U.S. District Court for the Northern District of Georgia, as atypical, since users are usually the ones that initiate litigation against vendors when contract disputes arise. But such battles may become more commonplace as both vendors and users face growing financial and competitive pressure in today's slowing economy, according to at least one analyst.

"This is a case of man bites dog. It's an oddity," said Tom Rodenhauser, president of Consulting Information Services LLC in Keene, N.H. "You don't sue [a client] unless you've given up forever on them."

Neither El Segundo, Calif.-based CSC nor Saks, a Birmingham, Ala.-based company that operates Saks Fifth Avenue and other department store chains, would comment on the case, though both companies acknowledged that the suit had been filed.

According to a statement CSC filed with the court, Saks agreed in January 2000 to let the consulting firm take over its contract negotiations with telecommunications suppliers and computer software and hardware vendors. The move was expected to save the retailer about $2 million in annual costs, CSC claimed.

CSC reviewed Saks' telecommunications contracts to see what kind of savings the retailer could get by purchasing the services through agreements the consulting firm has with the suppliers, the suit said. But CSC alleged that Saks used the confidential information "as bargaining tools in [its] own negotiations with telecommunication service providers."

As part of the suit, CSC is seeking compensatory and punitive damages plus attorneys' fees from Saks. Although the consulting firm didn't specify the amount of damages it's requesting, the suit claims that Saks owes CSC nearly $1.5 million plus interest for its services.

Contract disputes like this one may become more commonplace, said analyst Alden Cushman at Kennedy Information Inc. in Fitzwilliam, N.H.

As a result of the dot-com collapse and the slowdown in the economy and IT spending, some clients may be finding ways to save money on IT instead of leaving the work to a consulting firm, which could result in possible misunderstandings, Cushman said.

See You in Court

CSC's lawsuit alleges that:

- **CSC performed an analysis of Saks' contracts** with telecom providers, but Saks used the information to negotiate agreements on its own.
- **Saks used improper means to acquire** confidential information from CSC.
- **Saks owes CSC about $1.5 million plus attorneys' fees.**

ACLU Knocks Eli Lilly for Divulging E-Mail Addresses

Site's prescription reminder reveals names of recipients

BY JULEKHA DASH

Pharmaceutical firm Eli Lilly and Co. inadvertently divulged the e-mail addresses of 600 patients to one another due to a computer programming error revealed last week. The incident sparked an outcry from the American Civil Liberties Union for the breach of privacy, and analysts noted it's the kind of event that will violate pending health care rules.

The incident occurred when the drug maker sent an electronic message to its registered Web site users to notify them that the site's "reminder" feature, which alerts them to take their medication, would be discontinued due to a redesign. Instead of each message being sent individually, the system sent one e-mail, whose "to" field revealed the complete e-mail addresses of about 600 patients, according to Eli Lilly spokeswoman Anne Griffin. Indianapolis-based Eli Lilly makes the antidepressant drug Prozac and other drugs.

The affected patients were those who had signed up for the e-mail reminder service. Griffin described the mistake as an "isolated event" and the result of a programming error.

To prevent other such incidents, Eli Lilly is preparing a code audit review and is "working on a program that would block all outbound e-mails with more than one address," said Griffin.

The company is also talking to its employees about the importance of protecting patient privacy, she said.

Analysts said the error violates the pending Health Insurance Portability and Accountability Act (HIPAA), which, among other things, stipulates that health care organizations must establish policies and procedures to protect patient privacy. But the drug maker won't face any HIPAA penalties because organizations have until April 2003 to comply with the rules.

E-Mail Error

Eli Lilly says a programming error led to mishap.

- *Patients had signed up for e-mail reminders to take a prescription drug or for other health matters. About 600 patient addresses were identified in a mass e-mail.*
- *The ACLU has asked the FTC to investigate the error for possible consumer privacy violations.*

The company's mistake came under fire from the New York-based ACLU, however. In a letter, the ACLU asked the Federal Trade Commission (FTC) to investigate Eli Lilly for consumer privacy violations.

"If this breach of duty goes unnoticed, it could raise the possibility not only that Eli Lilly will continue to injure consumers and harm the public interest, but that other companies will be encouraged to engage in similarly unfair and deceptive practices," wrote Barry Steinhardt, ACLU associate director, and Christopher Chiu, Internet policy analyst.

During the next two years, health care organizations will have to review the way they communicate health information with patients to comply with HIPAA.

Mitsubishi to Consolidate 700 Networks Using Provider

Hopes investment in and move to ANX hub will improve, lower cost of service

BY LEE COPELAND GLADWIN

Imagine operating seven industrial-grade private networks and point-to-point bandwidth connections worldwide. Multiply that number by 100, and you will understand the IT challenge facing Mitsubishi Corp.

To consolidate its sprawling network morass, Tokyo-based Mitsubishi this week plans to take a 20% equity stake in networking provider ANXeBusiness Corp. and make ANX its primary networking hub. It's also a deal that analysts and users say will fuel a long-awaited expansion of Southfield, Mich.-based ANX's services into the Pacific Rim.

"We have a huge EDI [electronic data interchange] network of 700 different networks, and it's really a headache and difficult to manage and to maintain security levels across the networks," said Junji Inoue, senior vice president of e-commerce at Mitsubishi, which posted $124 billion in revenue last year. Inoue said he expects that using ANX's network will both reduce costs and provide better data communications between its diverse subsidiaries — for example, in the petroleum, chemical and consumer electronics industries — and their numerous suppliers.

Financial terms of the deal weren't disclosed. Mitsubishi plans to implement ANX at its corporate headquarters and its 650 international subsidiaries whenever possible. It will also conduct a feasibility study this summer on how to market the service to its trading partners, Inoue said.

"We're in a good position to expand the ANX service to other industries other than automotive," said Inoue.

With bandwidth rates of 1.5M bit/sec. and higher, ANX allows its customers to exchange computer-aided design files, encrypted messages and EDI transactions to internal facilities and external suppliers and partners, said Erik Naugle, chief technology officer at ANX.

"ANX is already the de facto standard for any company in the automotive industry," said Zeus Kerravala, an analyst at The Yankee Group in Boston. "This cash will help them expand globally and will solidify their position as a premier networking company."

The Automotive Industry Action Group (AIAG), a trade association of automakers and suppliers, launched ANX in 1997 to provide a central point of connectivity to the major automakers and their suppliers in the U.S. and Canada. The Southfield, Mich.-based organization attracted 280 automotive customers but couldn't fund or manage expansion into other vertical industries, Europe and Japan. So in December 1999, the AIAG sold ANX to San Diego-based Science Applications International Corp. to meet its growth goals, according to a former AIAG official and ANX.

Since then, ANX has widened its focus to other verticals, such as financial services and health care, said Naugle. The customer roster now includes about 850 companies, he said.

The Mitsubishi deal suits ANX customers such as Dofasco Inc., a $2 billion manufacturing company that produces steel for the construction, packaging and automotive industries.

"[This deal is] very promising because it could help develop ANX deployments in Asia Pacific," said Doug Buchanan, business technology manager at the Hamilton, Ontario-based company. He said Dofasco's EDI costs have been cut in half because ANX charges a flat fee to customers, as opposed to other bandwidth suppliers that charge based on the volume of transactions. Further expansion could cut costs even more, Buchanan said.

AT A GLANCE

Network Deal

Mitsubishi has ambitious plans for ANXeBusiness.

- Mitsubishi plans to announce a 20% equity investment in ANX.
- The $124 billion conglomerate will use ANX to consolidate its 700 private nets.
- Mitsubishi plans to build out ANX's existing network infrastructure to support operations in the Pacific Rim.

Visa Offers Security Spec for E-Transactions

Banks, retailers begin installation of payment tech

BY LUCAS MEARIAN

Teaming up with more than 60 technology vendors, Visa International Inc. has rolled out a new technical specification to support payment authentication services for online credit card transactions worldwide.

Foster City, Calif.-based Visa International's new 3-D Secure 1.0 specification puts a global spin on payment authentication capabilities that Visa's U.S. operations detailed in May. But at least one industry analyst criticized Visa's specification, saying that it and others like it used technology that was "lying around the shop" and that it could be a lot smarter.

Front-End Limitations

The technology lets consumers buying items online authenticate their identities with passwords or personal identification numbers through windows that pop up after their credit card numbers are entered.

Cardholders can use traditional Visa cards or smart cards at the electronic storefront. But that's where the smart-card technology stops — at the front end. Analysts said the system could go further by allowing card-issuing banks to tie that information into relational databases that could, for example, add frequent-flier miles based on a rewards program to the card's memory.

"I wish that [Visa and MasterCard] and American Express and Discover would take chips seriously and use it for the security it offers," said Theodore Iacobuzio, an analyst at Needham, Mass.-based research and consulting firm TowerGroup.

IT managers at hundreds of banks and retailers will now be faced with installing the new specification during the next 18 months.

Tickets.com Inc. in Costa Mesa, Calif., decided to jump on board Visa's new authentication network because the company believes the specification gives customers better security than chief competitor and market leader Ticketmaster.

"When you talk to customers about their biggest concern over conducting transactions on the Internet, security comes out as their No. 1 major concern," said Andy Donkin, president of Tickets.com's Internet ticketing group.

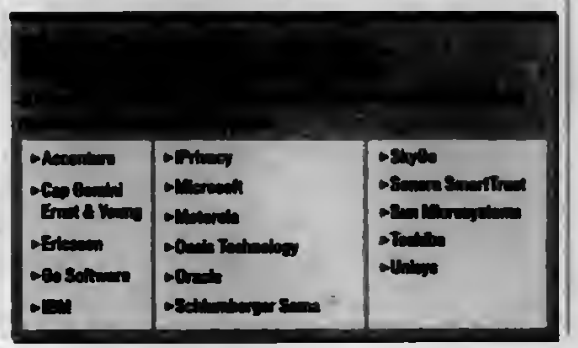
Mark Redding, vice president of Web development at Tickets.com, said he spent two weeks configuring his Web servers for the new specification and had a "few issues" with that end of the implementation. But, he added, "the coding literally took less than a week."

Oliver Althoff, a spokesman for Fleet Credit Services in Boston, said the installation difficulties on the back end depend entirely on a financial service company's existing network. For Fleet, which has a robust customer service network, it was an eight-month process that included adding Web servers both on- and offsite for redundancy and backup capability.

"We had some significant expenses around the smart-card technology, but we had a robust servicing platform that we were able to piggyback on," Althoff said.

Randi Purchia, an analyst at AMR Research Inc. in Cambridge, Mass., agreed with Iacobuzio that the technology Visa is using is nothing new. Merchants will be quick to adopt it because verifying the cardholder's identity promises to cut in half the number of chargebacks, or failed purchase attempts, they currently experience, Purchia said.

"I'd agree that the smart-card solution is the place where this is all heading," Purchia said. "It's just not moving as fast as we would hope."



Nasdaq Launches Revised Order System

Testing problems rouse concerns with users

BY LUCAS MEARIAN

As the Nasdaq stock market prepared last week for today's launch of its revised version of the Small Order Execution System (SOES), analysts said problems revealed in trial runs are making electronic communications network (ECN) companies hesitant to use the expanded messaging network.

Nasdaq shut down for an hour June 29, after a technical snafu led to a slowdown of its SOES and SelectNet quote-update networks.

It's that kind of mistake that has sparked skepticism over the new SuperSOES service, according to Damon Kovelsky, an analyst at Meridien Research Inc. io Newton, Mass. Declining to comment on specifics, Kovelsky said Nasdaq's test of its SuperSOES network has revealed some "serious problems . . . all of a technological nature."

In a statement last week, Washington-based Nasdaq Stock Market Inc. said, "Currently, all systems seem prepared, and the launch date is firm. However, Nasdaq will not implement SuperSOES if we are not confident our system is ready. We are retaining the legacy system, so it will be possible to revert to the old platform."

SuperSOES, which will operate during normal market hours only, will increase the number of trades in one transaction a thousandfold, from the current 999 to 999,999. SelectNet is currently used for all large trade orders.

The first pilot of the SuperSOES system will launch today and will include 20 securities — 18 Nasdaq National Market securities and two test stocks. The full implementation of SuperSOES will begin July 30 and will include all Nasdaq National Market securities.

The hope, said analysts, is that the new communications network will eventually make SelectNet obsolete. That system is clunky and slow and has been troubled by outages, they said. "It's the Nasdaq platform ECNs love to hate," said Kovelsky. ECNs are private trading networks that let people conduct stock transactions without going through Nasdaq market makers such as Goldman, Sachs & Co. in New York.

But the ECN companies seem skeptical that SuperSOES is the answer.

Margaret Nagle, a spokeswoman at Archipelago Holdings LLC, an ECN in Chicago, said the firm won't use SuperSOES as its automatic order-execution engine in the immediate future because Archipelago already has its own.

Nagle said Archipelago has tested the SuperSOES system with Nasdaq over the past few weekends and hasn't seen any problems. "But things operate differently in test environments than when you're live," she said. "We don't know yet how quickly quotes will be updated in this new system. We wouldn't want to give stale quotes."

Andrew Goldman, an executive vice president at The Island ECN Inc. in New York, welcomed the launch of SuperSOES as a positive step. But he stopped short of saying whether Island would ever consider the network as its primary automatic order-execution engine.

In fact, Nasdaq said in its statement that so far, no ECN has indicated that it will be a full SuperSOES participant willing to accept automatic order executions against its quotes.

Meanwhile, Nasdaq spokesman Scott Peterson said the June 29 outage won't affect the launch of SuperSOES.

Software problems have plagued the stock exchange's SOES. Last year, trading had to be halted at least five times for up to 11 minutes because of slowdowns in the network, which is provided by WorldCom Inc. "We have resolved this issue and will continue to work with Nasdaq to take all steps necessary to ensure it does not recur," WorldCom CEO and President Bernard J. Ebbers said in a statement.

A Nasdaq official said the most recent shutdown was caused by a WorldCom technician who entered a command into the live network instead of the test network on which he was running a program.

AT A GLANCE

SuperSOES

According to Nasdaq, SuperSOES is a revised version of the Small Order Execution System, its current automatic execution trading system. **SuperSOES will become the primary order-routing and automatic execution system for Nasdaq National Market securities.** At the same time, these enhancements will re-establish SelectNet as a nonliability system for order delivery and negotiation.

Metricom Files for Bankruptcy Protection

Says subscribers will stay connected

BY LINDA ROSENCRANCE

Wireless Internet access provider Metricom Inc. filed for bankruptcy protection last week but said it plans to keep subscribers to its Ricochet service connected during reorganization.

Metricom filed a petition for reorganization under Chapter 11 of the U.S. Bankruptcy Code in San Jose, where the company is based. Under Chapter 11 protection, Metricom plans to "restructure its operations and debt obligations while maintaining its wireless network and continuing to provide service to customers and resellers in the 15 metropolitan areas it serves," the company said in a statement.

"They could never find a place in their network where there was a high volume of traffic and [where] the economy played in their favor," said Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn.

The company said it had 40,900 subscribers at the end of March. Metricom charges up to $79 per month for unlimited airtime but offers volume discounts to $59 per month for organizations with more than 20 accounts.

Ricochet subscriber Alan Foster, vice president for government and community affairs at Sanyo North America Corp. in San Diego, said that although he likes the Ricochet service, the price is somewhat prohibitive, especially since it's offered in a very limited market.

Foster said he's concerned about Metricom's bankruptcy filing. Ricochet works well in the cities where it's offered, "but because it's so expensive, I couldn't really get enough people to buy into it. I talked to a lot of people, and they said it's not offered everywhere they travel," he said. "Maybe if the prices came down, more people would [subscribe]."

Foster, who said he also subscribes to Earthlink, said Metricom needs to be more aggressive in marketing its product in order to survive. However, he said, "if they fail, there will be someone else" to take their place.

Edwin Robertson, technology director at Corporate Financial Services in Philadelphia, said he used the service on a trial basis about six months ago but decided not to subscribe. "They couldn't cover the areas I needed," he said. "I live in Maryland, but the only place I could get a good [connection] was in Philadelphia."

Robertson said Metricom's only hope is to solidify its infrastructure. "People have to have access to the Web through [Metricom's] product [wherever they are]. Right now, it's like buying a car with no tires."

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Ricochet also faces increasing competition from other providers of both wireless and wired services, Dulaney noted. "People in their homes are going to use high-speed [landline connections]; people in airports are going to use 802.11b," he said.

The 802.11b wireless LAN standard operates at up to 11M bit/sec. The Ricochet service tops out at 128K bit/sec.

Metricom offers its high-speed service in Atlanta, Baltimore, Dallas-Fort Worth, Denver, Detroit, Houston, Los Angeles, Mioneapolis-St. Paul, New York, Philadelphia, Phoenix, San Diego and the San Francisco Bay area. It offers a 28.8K bit/sec. service in Seattle and Washington.

The bankruptcy announcement follows a troubled start to the year for Metricom. In February, Timothy Dreisbach resigned as the company's chairman and CEO. In March, the company announced plans to lay off about 25% of its 800 employees.

IDG News Service correspondent Douglas F. Gray contributed to this report.

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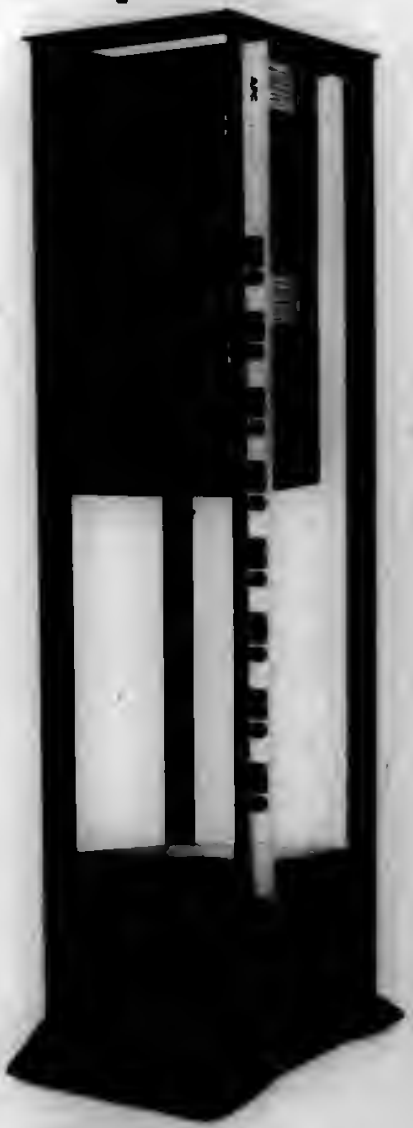

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Oracle Users Cautiously Optimistic About Pricing Changes

BY DAN VERTON

Users are applauding Oracle Corp.'s move to cut database software prices and discontinue the controversial power-unit pricing, but they're taking a wait-and-see approach to Oracle's new cost-conscious view of the world.

Oracle CEO Larry Ellison announced the move to per-processor licensing last month, when he unveiled the company's Oracle9i database. The change came after a third-quarter earnings shortfall and a year of negative publicity that was fueled by user discontent with Oracle's power-unit pricing model, which many characterized as exorbitant.

Now, with per-processor based fees that reduce costs for some configurations by as much as 15% to 18% compared with the power-unit approach, users said they're optimistic about their futures as Oracle customers.

However, most said the economy must improve before they can buy more software.

"The new pricing is much more acceptable and competitive," said Doug Cummings, manager of new technologies at Andover-Mass.-based Vicor Corp. "I think that the overall reaction to the policy change is positive. [However], with the economy like it is, we are just not spending like we were in the past."

Rich Niemiec, president of the International Oracle Users Group-Americas, a Chicago-based organization that represents Oracle's database users, said users are telling him that the price changes came at the perfect time. "The main things that I'm hearing is that pricing is much simpler to understand [and] the price reductions come at a great time — when times are tougher," Niemiec said. "It keeps people on Oracle and thinking about Oracle9i and when to move to it."

Other users, like Michael Karaman, vice president and chief technology officer for product development at The Medstat Group Inc. in Ann Arbor, Mich., agreed that the price changes are welcome but said it's too early to see any impact. "Thia is certainly a move in the right direction," said Karaman.

Oracle'a pricing spokesperson was unavailable for comment last week because of the hnliday, and attempts to speak with someone else were unsuccessful.

Yet, while Oracle's move to per-processor pricing resulted in price reductions for users, some still say the $40,000 per-processor price tag for the enterprise software edition la a little high compared with the $22,000 IBM charges for a DB2 enterprise license. John Chadwick, a U.K. government Oracle user, said the price nf an Oracle database could still put off small and medium-size clients in the U.K., where funds are even harder tn come by.

"Customers are still very much in 'Let's digest this all before we go ahead with anything' mode," said James Governor, an analyst at Illuminata Inc. in Nashua, N.H. Users are weighing what the changes will mean for them in practice, he said. "I don't think Oracle can escape the premium-pricing tag overnight. I would say it's still a little too early to call."

Firm Tracks Threats, Not Vulnerabilities

TruSecure aims to monitor what hackers really exploit; some say that's not so easy

BY DAN VERTON

COMPANIES TODAY are at as much risk of falling victim to security information overload as they are of getting hacked. The number of security advisory services that claim to offer a way to stay ahead of the hundreds of technical vulnerabilities discovered each day has made it virtually impossible for companies to know for sure if they're getting the right information.

TruSecure Corp., a Reston, Va.-based security firm, claims it has an answer. Using the client base of 36,000 Internet-connected systems it monitors, TruSecure is developing a threat database that it says will rightfully shift the discussion toward a more effective security model: from one of what vulnerabilities are out there to one that highlights what hackers are actually doing.

Other organizations use a similar approach, but the TruSecure database would power the first alert service based exclusively on threat data pertaining to hacker activity and not nn vulnerabilities in general. "A vulnerability without a threat isn't worrisome," said Peter Tippett, TruSecure's chief technologist. "We're focused on risk ... where there are both vulnerable systems and people shooting."

The threat database will complement TruSecure's vulnerability database. It will be offered in conjunction with the company's quarterly list of the top 10 hacker exploits that it says are responsible for 99% of all successful network intrusions (see chart).

"If we focus on protecting against the stuff that really happens, then we're protecting against the relevant stuff," he said. "A quarterly upgrade of systems gets you a twentyfold reduction of risk." TruSecure couldn't say when the database would be completed.

Other security experts and analysts agreed with Tippett's general argument and acknowledged the need for threat information. But most questioned the ability of any one vendor to collect enough detailed information to be able to determine what exploits hackers are actually using. They also pointed to potential problems with TruSecure's focus on what Tippett calls "the easy stuff."

"They're completely right. Looking at a hundred vulnerabilities a day does nothing for you," said Tim Belcher, chief technology officer at security monitoring firm RipTech Inc. in Alexandria, Va. "However, I'm sure that without a very good monitoring base, it would be very difficult to tell what is being done successfully."

One organization that tries to offer both vulnerability reporting and threat data is the CERT Coordination Center at Carnegie Mellon University in Pittsburgh.

"We go to great pains to understand which vulnerabilities are most serious and which are most likely to be exploited by hackers," said Shawn Hernan, team leader for vulnerability handling at CERT.

Hernan also warned against focusing too much energy on the easy exploits.

"Intruders are adaptive and trying to get too simplistic just causes the intruders to pick something else," he said. "If you fix the top 10 [vulnerabilities], they'll pick No. 11 or No. 26."

John Pescatore, an analyst at Stamford, Conn.-based Gartner Inc., acknowledged that analyzing threats has its merits. But he also questioned the ability to know for sure what exploits are being used and warned that by focusing too much on random attacks, some companies could be lulled into thinking they aren't vulnerable to specific, targeted attacks.

"If the vulnerability exists, sooner or later someone will shoot at it," said Keith Morgan, chief of information security at Terradon Communications Group LLC in Nitro, W.Va. "Plug them all. But plug the hot ones first."

	EXPLOIT	KNOWN AS
1.	W32 worm	Hybris
2.	Unix RPC Services (sadmind/IIS worm)	rpc.cmsd, rpc.mountd, rpc.sadmind
3.	W32 worm	Magister
4.	DNS BIND	tsig, lquery
5.	MSFT IIS	Unicode../RDS (sadmind/IIS worm)
6.	fipd	Wu FTP
7.	lpd	LPRNG overflows
8.	NETBIOS shares	137, 138, 139 scans
9.	MS w32 trojan	Sub7
10.	Short Lived Worm	Home Pages

MORE THIS ISSUE
For more on security, see page 22 and our In Depth section starting on page 33.

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BRIEFS

Dot-com Layoffs Down

Dot-com layoffs are at their lowest level since November, while overall job cuts in the U.S. in June were up 56% from the previous month, according to reports by outplacement firm Challenger, Gray & Christmas Inc. The Chicago-based firm reported last week that layoffs at Internet-related companies fell in June for the second consecutive month to 9,216, a decrease of 31% from May's 13,419 cuts. Layoffs in May fell 24% from April's record high of 17,554. June's cuts are the lowest since November's 8,788.

NextWave, Lucent Sign 3G Network Deal

NextWave Telecom Inc. has signed an agreement with Lucent Technologies Inc. to build the first phase of a third-generation (3G) digital wireless network, using the spectrum NextWave regained after a court battle with the Federal Communications Commission. Under the $100 million all-cash deal, Murray Hill, N.J.-based Lucent will begin construction of a wireless voice and data network in Detroit and Madison, Wis. Lucent will also deploy the initial phase of a data-only network in NextWave's remaining 93 markets, Hawthorne, N.Y.-based NextWave said. That work is expected to be completed within the next 10 months.

EMC Sales Fall Short

Once again blaming the slowdown in IT spending brought on by the softening economy, EMC Corp. last week warned that its financial results will fall well short of expectations for the second straight quarter. EMC now expects revenue of about $2 billion, 19% lower than the $2.43 billion Wall Street analysts had forecast. The Hopkinton, Mass.-based data storage firm indicated that second-quarter profits will likely be only about one-third of what was expected. Earnings should total between $80 million and $132 million, EMC said, which is far lower than the $375 million figure analysts had predicted.

CA Fights Back

Company files lawsuit to stop Wyly's takeover, cuts bonuses for top executives

BY MARC L. SONGINI

AS EXPECTED, the board and management team at Computer Associates International Inc. are showing stiff resistance to Texas entrepreneur Sam Wyly's bid to oust them.

First, they filed a lawsuit trying to block Wyly's takeover attempt. Then, last week, they moved to boost CA's bottom line by announcing that top executives won't receive any bonuses in fiscal 2002.

In a press release on its Web site regarding its preliminary proxy statement, CA said company President and CEO Sanjay Kumar and founder and Chairman Charles Wang this year will have their compensation limited to base salary, benefits and stock options. Wang's salary is $1 million, and Kumar's is $900,000.

The move appears to be an attempt to win the favor of shareholders, who have seen CA's top executives receive massive compensation during a time of lackluster revenue growth. Shareholders are scheduled to vote Aug. 29 on whether to keep the existing board or replace it with a board and management team led by Wyly.

But a spokesman for the Islandia, N.Y.-based company said the bonus cuts had nothing to do with the pending vote. Wang and Kumar didn't receive performance-based awards because of a "change in the firm's business model, which changed revenue recognition and resulted in a net loss for the year," according to a statement issued by CA.

Wyly, who last year sold his software firm, Sterling Software Inc., to CA, last month announced his intentions to replace Wang as chairman and to break the company into four independent units. CA quickly fought back by filing a lawsuit to block Wyly, based in part on a noncompete clause in the Sterling sales agreement.

CHARLES WANG, CA chairman

SANJAY KUMAR, CA president and CEO

A spokesman for Wyly's Dallas-based investment company, Ranger Governance Ltd., which is spearheading the proxy fight, called CA's lawsuit baseless and said it involves a "tortured misreading of the noncompete agreement." He said the decision not to award executive bonuses is immaterial.

"There are documented years of shareholder abuse, and one instance of their changing their egregious compensation does not change years of lackluster performance," the spokesman said.

In the proxy statement, Kumar said Wyly's plans to break the company into four organizations just don't make sense.

"In addition to decreasing the company's ability to offer integrated software solutions and engage in cross-selling, Mr. Wyly's plan would increase overhead costs and potentially be disruptive to employees," he stated.

Analyst Rick Ptak at Hurwitz Group Inc. in Framingham, Mass., agreed. "Wyly's plan sounds like a 'small is beautiful' fantasy," he said. "Customers are looking for solutions to comprehensive business problems, not a bunch of independent tools they have to assemble into a solution." ▶

CA World to Push Business Process Management Tools

Analysts say more user support needed for complex features

BY MARC L. SONGINI

This week, customers of Computer Associates International Inc. will get a glimpse of the company's latest iteration of its flagship network management application and hear how CA intends to execute its e-business plans.

However, analysts suspect that the Islandia, N.Y.-based company is going to have some trouble helping users fully grasp the features of some of its more complex new products.

At CA World, which opened Sunday in Orlando, the company is expected to unveil Unicenter 3.0, the next generation of its management product. In addition, it plans to announce that it will sell pieces of Unicenter as stand-alone products, freeing customers from having to buy the entire suite, said Tarkan Maner, vice president of corporate marketing at CA.

JEFF ADAMS: "CA can't seem to communicate" about its technology.

The company will also expand the number of application programming interfaces available for users to tie their CA products to heterogeneous supply chain management, enterprise resource planning and customer relationship management applications, which will allow business process management using Unicenter.

Everyone has been talking about interoperability and business process management, but CA is actually starting to deliver on it, said Rick Ptak, an analyst at Hurwitz Group Inc. in Framingham, Mass.

There are challenges, however. In particular, users are having a difficult time understanding the Jasmine ii middleware CA announced last year.

"I'm still learning [about Jasmine], and I'm impressed by its capabilities. But I'm starting to think that CA does a great job on the spin machine [but] can't seem to communicate about those technologies," said Jeff Adams, IT director at Canton, Ohio-based The Belden Brick Co.

Adams said Belden Brick has had Jasmine ii in place since May to tie together 12 databases, but the more uses the company finds for it, the more problems that arise.

Belden also uses Unicenter Framework, and Adams said he's interested in exploring the product line's business process management capabilities. However, he said that although he believes the technology is sound, he isn't sure CA has consultants with the skills needed to map his company's workflows to the applications. There aren't many people who understand how to apply technology to business, he added.

Despite CA's business process management offerings, it still has its work cut out for it, since competitors BMC Software Inc. in Houston and Austin, Texas-based Tivoli Systems Inc. have also been pushing on that front, said Corey Ferengul, senior program director at Meta Group Inc. in Stamford, Conn. ▶

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IBM Service Follows Products After Delivery

Aims to help manufacturers track unit-level data, reduce costs

BY JAIKUMAR VIJAYAN

IBM HAS LAUNCHED a service aimed at helping manufacturing companies track unit-level information, potentially reducing prodnet warranty costs and driving additional spare parts sales.

The service, called IBM ServiceAfterSales, is offered by IBM's Product Lifecycle Management (PLM) group. It was designed to improve a company's ability to track the performance and usage history of a product after it has been shipped to a customer.

Using the centralized service, companies will be able to keep tabs on key product-diagnostics information, usage and repair histories, maintenance and service records, and detailed case-based repair scenarios.

French automaker PSA Peugeot Citroën SA, for instance, is using the service to perform Internet-based remote diagnostics on its cars, said Alan A. Chakra, IBM's business unit executive in charge of the new service.

Using onboard diagnostics and Internet links at dealer locations, a Peugeot vehicle can report fault conditions to a remote service facility maintained by IBM, which then advises technicians on the corrective steps that need to be taken, Chakra said.

Another example is a recent wireless remote monitoring and control service called Myappliance.com that's being offered by Farmington, Conn.-based air conditioner maker Carrier Corp. and IBM. Among other things, the service allows Carrier's new Web-enabled air conditioners to send fault codes and other diagnostic alerts instantaneously via mobile phones, e-mail or fax to the company's service technicians, Chakra claimed.

This kind of unit-level interaction helps companies reduce repair times and avoid the common mistake of unnecessarily replacing good parts, analysts said.

It also allows companies to gather information that can be used to anticipate and design around future problems, said Andy Chatha, president nf ARC Advisory Group Inc., a Dedham, Mass.-based manufacturing consultancy.

These kinds of capabilities are crucial for manufacturers that are looking to aftermarket service, maintenance and repair for opportunities to cut costs and grow revenues, especially in a slow economy, Chatha said.

Despite the potential upfront costs, "there's a lot of pressure on manufacturing companies to develop systems like these" because of their long-term return on investment, he added.

Putting together the pieces needed to deliver such services isn't trivial, said Ken Amann, an analyst at CIMdata Inc. in Ann Arbor, Mich.

IBM is working with other companies to integrate the components of an organization's product life cycle management system, such as product services, customer support, configuration and diagnostics services, as well as aftermarket service support and management teams.

"The good news is that all the pieces are there already," Amann said. And advances in areas such as wireless and broadband technologies are making deployment easier, he added. The key lies in integrating these different parts and figuring out how to optimally gather, store, access, share and mine the information that's generated from such a system, he explained. ▶

Managing the Product Life Cycle

IBM's PLM partners include the following:

▸**Enigma Inc.:** Offers technology that helps manufacturers combine product information with e-commerce and decision-support systems.

▸**Dassault Systemes SA:** Supplies technologies to graphically define, share and manage product, process and resource information throughout the whole product life cycle.

▸**Cadam Systems Co.:** Sells specialized desktop computer-aided design and manufacturing systems.

Cargill Launches Internal Online Catalog

Software from Cardonet will automate procurement of supplies from 70 vendors

BY MARK HALL

Cargill Inc.'s IT team this week is being trained on a new catalog management application for company employees who purchase products online.

The $48 billion Minnetonka, Minn.-based conglomerate has added the E-Catalog Automation Platform from Santa Clara, Calif.-based Cardonet Inc. to automate its procurement operations. The upgraded software includes both buyer and seller catalog management capabilities; previously, the two functions were offered in separate products.

The upgrade also adds features such as automatic classification of content based on preset rules and category-level attributes. These features let catalog owners apply the same attributes with different rules for each category.

Jeff Robles, Cargill's electronic procurement architecture and implementation leader, said his team will initially focus on cutting time out of the procurement process.

"If you can take five purchase orders and put them into one, you're also going to be saving money," he said.

Establishing Standard Rules

Cargill will establish standard rules for categorizing content so online catalog managers won't have to review and categorize content for every new catalog.

For example, acronyms that are used in catalogs will be identified and either automatically translated into their full names or brought to the attention of a catalog manager for explanations.

Cargill's procurement system has 70 suppliers that offer a variety of office and building supplies, Robles explained. He said one of the company's goals will he to create a preferred list of suppliers.

Cargill wouldn't disclose what it's spending on the project, but pricing for the Cardonet software starts at $125,000. ▶

MSN Messenger Loses Touch With 12M

Users unable to access contact lists

BY JENNIFER DIBARTINO

About 12 million users of Microsoft's online instant messaging service lost access to their contact lists last week after a July 3 hardware failure at the company's headquarters. The problem had not been resolved by the time of *Computerworld*'s print deadline Friday afternoon.

"On a server, a disk controller failed and a backup controller had an error," said a Microsoft Corp. spokeswoman. "It's no small potatoes, and they're taking this very seriously."

The service, MSN Messenger Service, has 36 million users worldwide, so about one-third of the users were affected, said the spokeswoman. The data wasn't lost, she said, users just couldn't get access to it.

The spokeswoman said the problem wasn't linked to a configuration glitch with Microsoft's new Passport service, which lets users register a single name and password that works at various Web sites, eliminating the need to reregister at every site. ▶

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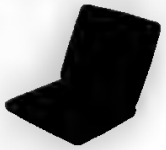

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BRIEFS

Feds Asked to Boost IT Research Funding

Federal funding is the backbone of the Internet and supercomputing, but future advances are in jeopardy because of a slowing federal commitment to IT research, according to some IT leaders. "We must act now to reinvigorate long-term IT research," said Eric Benhamou, chairman of Santa Clara, Calif.-based 3Com Corp., during a hearing of the House Science Committee's Subcommittee on Research late last month. "If we do not take these steps, the flow of ideas that have fueled the information revolution over the past decades may slow to a trickle," Benhamou said. The government is slated to spend $1.76 billion on technology research initiatives during its current fiscal year. The Bush administration has asked for a 1% increase for the coming year.

Vendor Investments in Start-ups Tanked in Q1

Large IT vendors with venture capital arms, which have reaped generous returns on start-up investments in recent years, significantly curtailed investing during the first three months of this year, according to a recent PricewaterhouseCoopers survey. Intel Corp., for example, made 163 investments in start-ups last year, compared with only 19 during the first quarter of this year. Cisco Systems Inc. made only seven investments in the first quarter, compared with 45 in all of last year.

Watch Those Links

Banks are being warned to exercise due diligence in linking third parties to their Web sites. Linking can pose a risk to an institution's reputation, particularly if the third party offers lower levels of security and privacy, said the Office of the Comptroller of the Currency in a bulletin released last week. The comptroller advised banks to examine these relationships and to ensure that customers aren't confused about the links.

IP Network to Monitor Power Grid in 14 States

Goal is to pinpoint problems and make corrections before electrical outages occur

BY JAMES COPE

A NEW organization directed by federal authorities to spot trouble and ensure competitive access to electrical transmission grids will soon deploy an IP network to monitor and control the transmission of electrical power from independent power producers throughout a 14-state area in the Midwest.

The Carmel, Ind.-based organization is Midwest ISO, an independent systems operator (ISO) that arose from a 1999 Federal Energy Regulatory Commission order aimed at discouraging electrical utilities from blocking independent power producers from accessing transmission grids. Similar organizations have been formed in other parts of the country, including ISO New England Inc. in Holyoke, Mass.

Michael Gahagan, Midwest ISO's CIO and chief strategy officer, said the IP network, which is being built and managed by AT&T Solutions in Florham Park, N.J., will be the linchpin of the ISO's operations.

The network command center in Carmel will be connected with the control centers for approximately 22 electrical utilities in the Midwest via AT&T's frame-relay cloud. Expected to go live in the middle of next month, the network should enable operations personnel at the ISO to look into regional transmission grids at a substation level, spot potential trouble and make corrections before an outage occurs, said Gahagan.

An example of a typical problem, he said, would be a recurring bottleneck on a major transmission route between, say, Minnesota and Wisconsin. Should more power be required on either side of the bottleneck, the sensors at sites on the network would immediately alert personnel in the ISO command center of a potential problem, Gahagan explained. Console operators could then issue orders over the network to ready another generator to pick up the slack, he said.

THE MIDWEST ISO facility in Carmel, Ind., will monitor operations at approximately 22 electrical utilities in the Midwest.

Currently operating in test mode, the ISO network is monitoring 100,000 different points on the regional transmission grid every 60 seconds, said Gahagan, who declined to say how much the ISO network costs.

Still, it isn't feasible to monitor every substation in the region, he said.

To compensate, the ISO will use computer simulation tools to paint a probable picture of areas on the grid that aren't directly observable. The simulation tools are based on algorithms previously developed by NASA scientists to pinpoint the position of lunar landing modules during Apollo space missions, said Gahagan. ▶

Digex CEO Gives Download on Hosting Nets

Hosting is complex issue, says Shull

Mark Shull is president and CEO of Digex Inc., which hosts and manages networks for large corporations such as Ford Motor Co. and New York-based Colgate-Palmolive Co. And he has a new boss; on July 1, WorldCom Inc. took a 55% stake in Laurel, Md.-based Digex. *Computerworld*'s James Cope spoke with Shull last week about some of the trends in network outsourcing.

Q: What's the major challenge confronting managed hosting providers and application outsourcers?

A: From the provider's perspective, the most difficult part is the sheer complexity. You have large numbers of services that you provide in a mission-critical way. Any one component may have 99.9% reliability. But you add multiple components, and the total system is going to be less reliable than any single application.

A lot of what we're doing is new. Up until now, most of what people were doing was market info and basic consumer sales. Now it involves more important functions, such as supply chain management and working with partners. We're now seeing core business applications [being outsourced].

SHULL: Data is pushed to customers in real time.

Q: How about from the enterprise customer's point of view?

A: There's grave concern about loss of visibility and loss of control [among corporate IT people], particularly with those who have to manage the business applications. We have built a lot of automation around deploying and managing [equipment and applications] ... in a way that all of the management data produced is generated in XML, in real time. We push [that information] to customers.

Q: What types of companies are attracted to the network outsourcing model?

A: Because we've only focused on managed hosting from the beginning, [customers] have been overwhelmingly large enterprises.

One reason they decide to outsource is because network technology is actually growing more complex faster. And there's the speed to market. We already have the infrastructure, the application services and the people to manage them.

Q: Many providers have cut their staff in recent months. What about Digex?

A: We have been increasing personnel — not at the same rate as last year, but increasing. On the sales front, a lot of our people have been coming from Web hosting providers. Our technical people have been coming from multiple places — from systems integrators and from other technology companies — because there aren't really that many managed hosting providers. ▶

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First Data Overhauling Backbone for E-Payments

Firm undertakes IT upgrade in bid for B2C, B2B transaction-processing markets

BY MICHAEL MEEHAN

FIRST DATA CORP. sprang to life in 1971 as a backbone for what was then an emerging credit card industry. Now the Denver-based payment services giant is in the throes of a massive IT upgrade that's aimed at helping it retain its market-leading position as the industry continues its shift to electronic formats.

First Data Resources, a division of First Data, is the world's largest third-party transaction processor, with more than 1,400 corporate issuers and 311 million accounts in its portfolio. Last year, the division brought in CIO-for-hire Charles Feld to shepherd the company into the e-commerce era.

Feld, who was previously CIO at Frito-Lay Cos. and Delta Air Lines Inc., is candid about First Data's challenges and the opportunity for it to become a central hub supporting all sorts of business-to-consumer and business-to-business online transactions.

FELD: "Cash and checks will be as distant a memory as wampum."

"I don't know when, but cash and checks will be as distant a memory as wampum at some point," Feld said. "Money's changing, forever. We want to be the payment and transport for whoever wants to transact business." That includes processing everything from consumer credit card purchases to multimillion-dollar business-to-business transactions.

Feld has focused on separating data from its transport. Wireless purchases, sales made through online exchanges and credit card transactions will be wrapped in uniform messaging protocols and routed through a layer of Unix machines, which will be used to help make decisions about how to handle that data. Then the information will be routed back to a cluster of IBM OS/390 mainframes, which will process the transactions.

Market-Driven

To a degree, First Data didn't choose its business strategy.

Corporations are busy retooling their back-office environments to handle more of their sales and purchases in electronic formats. Gartner Inc. in Stamford, Conn., estimates that online business-to-business transactions totaled $434 billion last year and will jump to $6 trillion by 2004.

Recognizing that someone has to move that money, First Data spent $40 million last year to beef up its IT operations. Feld said the company plans to spend between 3% and 5% of its card revenue this year to build on that effort. A First Data spokeswoman said that amounts to an additional $40 million investment in the IT infrastructure upgrade this year.

"There's some serious heavy lifting involved in that," Feld noted. "You're going to run into problems if the buy moves at Internet speed but the back end moves at rail speed."

According to analysts, online business-to-business transactions are often paid for with corporate purchasing cards issued by suppliers. That kind of money-handling limits the size and speed of electronic transactions.

"I think it's fair to say electronic payments have not been ready for prime time," said Laurie Orlov, an analyst at Forrester Research Inc. in Cambridge, Mass.

Orlov cited the inability of corporate accounts payable systems to process business-to-business transactions as the principal bottleneck, rather than the readiness of the banking and financial-processing world.

Still, she noted that both sides need to progress with their respective IT infrastructures to streamline the process.

Feld said he expects the work on First Data's database and Unix wrapper to take another 12 to 18 months. The move is expected to help the company process whatever types of transactional data its customers send. Once that effort is completed, the company will begin to build client-facing applications.

Leveraging Technology

First Data isn't alone in trying to carve out a position in the fast-evolving e-payments universe.

For instance, Dutch credit insurance company NCM NV has fathered a risk management services firm for online and off-line trade called eCredible Ltd.

"Everyone forgot that e-commerce isn't a brand-new way of doing business," said Jurgen Leijdekker, U.S. managing director at eCredible. "You still have to get paid at the end of the transaction, and you need to have the same support for electronic payments as you did for paper ones."

Meanwhile, Italy's largest automated interbank payment organization, SIA SpA, has contracted with Syntrex in Padova, Italy, to create a centralized method of handling all of its transactions.

Augusto Astesiano, SIA's e-business and security systems director, said that most of his company's customers will be working on TCP/IP networks within two years but that some established customers will still prefer to send information using the X.25 transaction protocols that the Society for Worldwide Interbank Financial Telecommunications' network uses.

"You have to be ready for any type of data," Astesiano said.

Bob McCullough, an analyst at Framingham, Mass.-based Hurwitz Group Inc., said the key for money-changers will be their ability to function in a technologically heterogeneous world.

"There's going to be a lot of different ways to transfer money, and someone's going to figure out how to do it if they don't," he said.

> I think it's fair to say electronic payments have not been ready for prime time.
>
> LAURIE ORLOV, ANALYST, FORRESTER RESEARCH

Inside First Data's Conversion

Charles Feld has spent the past decade as a CIO-for-hire at companies such as Burlington Northern Santa Fe Railroad and Delta Air Lines.

Now, as CIO of First Data's First Data Resources division, Feld is looking to update yet another legacy-system-dependent organization.

Here are some of the keys to the major IT overhaul he's currently driving:

- Make applications easy to configure so programmers aren't required to act each time changes need to be made.
- Standardize payments into a generic format.
- Provide a packet of interfaces and rules options to credit-issuing companies reliant upon First Data's database, so they can change the rules and parameters on their own systems, as well as run their own customer relationship management applications based on the database.
- Use IBM's MQSeries middleware and Palo Alto, Calif.-based Tibco Software Inc.'s infrastructure software to shuttle data from client-facing Unix machines back to IBM OS/390 mainframes.
- Leverage existing technology, such as IBM's DB2 and WebSphere middleware, instead of tapping into new technologies. "Everything we have is a firm piece of stuff that I've worked with, or the people at First Data have worked with," Feld said. "There's no unknowns. We know exactly how that stuff works."
- Orchestrate the overhaul using a small management team, and take advantage of institutional knowledge. "I'm a firm believer that 30 years of knowledge is worth something," said Feld. "That's a lot to rebuild, if you ignore it."
- Set up governance processes on technology and business sides to ensure that changes are properly implemented and adopted. "Most IT organizations are pretty weak on governance," Feld said. "What's the opposite of governance? I guess it's lawlessness. Anyway, that's what we're trying to avoid."

– *Michael Meehan*

New Software Helps Baseball Scouts Track Prospects

BY JENNIFER DiSABATINO

Somewhere, an old, wizened baseball scout who never before touched a computer is typing player statistics into his laptop instead of scribbling on hotel notepaper.

From the laptop, the data will be shipped to the front office via the Internet for consideration by coaches and the general manager, instead of being faxed to the IT department, where techies try to decipher the handwriting and type it into an AS/400.

"They surprised us," Vince Crossley, network administrator for the Los Angeles Dodgers, said of the scouts. "They seemed to be able to adjust to this very, very well. We were expecting a lot of training and user issues and resistance. Some of the scouts had no computer experience and are senior citizens."

Seven Major League Baseball teams use IBM's Prospect Reporting and Organizational Solution (PROS), collaboration software that was specially built for baseball scouts on Notes and Domino from IBM subsidiary Lotus Development Corp. in Cambridge, Mass.

The Colorado Rockies, Kansas City Royals, New York Mets, Pittsburgh Pirates, Texas Rangers and Toronto Blue Jays also use the software. A few others are in line to start next year.

Tony Thallman, product manager at IBM, said PROS is basically a Notes database with special forms created for scouts. The forms include space to list the basics on a player, like his pitch speed, whether he's left-handed or right-handed or how fast he runs to first base. IBM custom-configures the forms for each team with 40 to 50 fields, and the data in those fields is measured and calculated to give each player a score.

"It saved us time, so we can support other departments. Everyone from the upper management down to the scouts — they all love it," said Tony Miranda, IT manager of the Blue Jays. Scouts for the Blue Jays used to send in documents through an old DOS-based system, and IT staff would have to manually clean up the data before sending it to the front office.

Jim Edwards, senior director of information systems for the Royals, said he and others in the IT group used to have to type often-illegible faxes into an AS/400. In addition to using the software to create reports, he's able to send reports out via Notes because, unlike the Dodgers and the Blue Jays, the Royals use Notes for corporate messaging and have tied it to the PROS software.

Edwards, Miranda and Crossley said they would like to set up virtual private networks so their scouts can access the PROS system from any Internet-connected machine.

NHL Scores With Database On Draft Day

BY JENNIFER DiSABATINO

This year's top pick in the National Hockey League entry draft, Ilja Kovalchuk, is from Russia. But for teams and reporters, getting his background information wasn't a problem.

NHL officials shaved hours off the process of selecting players in the draft by using a database accessible to teams, scouts and even journalists. The teams also save time by using e-mail to submit the names of draft picks, eliminating the need for runners to carry messages to and from team tables.

Built on Notes 5 and Domino collaborative technologies from Lotus Development Corp. in Cambridge, Mass., the NHL database contains information about all prospective draft picks. Business rules built into the software allow those vetted by NHL scouts to automatically pass on to the next phase of the workflow process. The playing histories of those who haven't been vetted are compiled from scouting reports and local news coverage. NHL officials review that material before they approve the draft pick.

The draft took place last last month at the home rink for the Florida Panthers in Sunrise, Fla. Some 60 workstations, connected to two Notes servers, were available for the league's 30 teams, NHL officials and journalists.

Part of what Peter Del Giacco, vice president of IT for the NHL, has done with Notes and Domino is to automate the workflow process of the draft. Now, a team sends a request for a player as a draft pick in a Notes e-mail message. That message is automatically routed to the central scouting desk. Requests for preapproved players are automatically forwarded to the central registry desk. If approved there by NHL officials, the name goes to the podium, where there is also a workstation, and NHL officials post the name on a large display board.

"Teams can run various types of reports. They don't have all day to make these decisions," Del Giacco said. "We also wanted to generate something that was point, click — fairly easy to use. We also didn't want to take six months to write it." This was the fourth year using the system for the draft.

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BRIEFS

IBM Completes Buy Of Informix Database

IBM last week completed its $1 billion acquisition of Westboro, Mass.-based Informix Corp.'s database operations. About 2,500 Informix employees are shifting to IBM as part of the deal, which was agreed to earlier this year. Plans call for key technologies such as Informix's analytical tools to be incorporated into future versions of IBM's flagship DB2 Universal Database. IBM said it will continue to sell Informix's existing database products, but DB2 will be the foundation for future offerings.

IBM to Cut 1,000 Global Services Jobs

IBM will lay off approximately 1,000 employees in its IBM Global Services division as part of an effort to align the skills of its workforce with demand from customers, a company spokeswoman confirmed last week. The affected employees will have 30 days to seek employment in other IBM business units before they're laid off, she said, adding that the layoffs will all take place in the U.S. The move echoes a similar step taken by the company in May of last year, when it announced a plan to eliminate about 1,000 employees from the same division.

Short Takes

SAPIENT CORP. is laying off 14% of its staff, or 380 workers, in the second round of cutbacks at the Cambridge, Mass.-based Internet consulting firm this year. . . . To cut costs, HEWLETT-PACKARD CO. is asking its 88,500 employees worldwide to volunteer to take either eight vacation days off without pay or a 10% pay cut. Employees may opt instead to take four vacation days without pay and a 5% pay cut. . . . New York-based TMP WORLDWIDE INC., the parent company of online job-hunting site MONSTER.COM, is buying rival HOTJOBS.COM LTD., also in New York, for approximately $460 million.

B2B Vendors Suffer Another Bad Quarter

Commerce One, others miss targets

BY MICHAEL MEEHAN

A SPRING THAW didn't follow a harsh winter for B2B software vendors. Many companies last week reported that their revenues are still plummeting.

Commerce One Inc., i2 Technologies Inc. and BroadVision Inc. all announced that they expect quarter-to-quarter revenues to tail off at least 30%.

It marks the second straight quarterly regression for these companies. Analysts said that they believe the slide will continue and that it shows how companies are investing in IT more conservatively.

Kimberly Knickle, an analyst at Boston-based AMR Research Inc., said that implementations of software for buying and selling goods electronically can be lengthy and involved projects, costing $500,000 or more. "I'm not sure companies are willing to take that on right now," she said. "Nobody wants to be in charge of the project that keeps growing."

It has also become common for IT projects to require a higher level of executive approval than they once did, according to Laurie Orlov, an analyst at Forrester Research Inc. in Cambridge, Mass. B2B procurement has also lost some of its luster, she added.

"The [enterprise resource planning] guys are savvy about procurement now," Orlov said. "You can get procurement from PeopleSoft, SAP and Oracle now, and it works, unlike some of their earlier releases. For the B2B vendors, that means it's not differentiation through newness anymore."

SAP AG actually rushed to the aid of Pleasanton, Calif.-based Commerce One about two weeks ago, with a $225 million investment worth approximately 20% of Commerce One's stock. Many analysts viewed the investment as a major step toward SAP's eventual purchase of its smaller partner.

"Long term, the marriage will take place, but probably just for the technology and nothing else," said Hari Srinivasan, an analyst at Banc of America LLC in San Francisco. "It doesn't look like there's a lot of revenues to be had from Commerce One."

However, in a conference call, SAP CEO and co-founder Hasso Plattner called Commerce One's marketplace software a key in SAP's attempts to break free from its back-office supply chain moorings. In particular, he said, joint development efforts with Commerce One would help SAP gain a foothold in private procurement exchanges and help with B2B integration.

He insisted that two down quarters in a slow economy isn't reason to abandon a company that has proved to be a valuable technological partner. "We make a major investment here because we see a huge business opportunity," Plattner said.

Redwood City, Calif.-based BroadVision saw its revenue tumble from an all-time high of $136.9 million in the final quarter of 2000 to $91.1 million in the first quarter of 2001, and to an estimated $54 million to $60 million last quarter. Likewise, Dallas-based i2 saw its numbers drop from $357 million in the first quarter of 2001 to an estimated $235 million to $240 million this past quarter.

Both companies said they were hurt by general slowness in the economy. ▶

Security Firms Hit Bumps

Earnings warnings, layoffs hit sector

BY JAIKUMAR VIJAYAN

Computer security firms, which until recently seemed impervious to the broad slowdown in IT spending, are finally beginning to feel the pinch.

Last week, Atlanta-based Internet Security Systems Inc. (ISS) announced that its second-quarter earnings would range from a loss of 2 cents per share to break-even, on revenue of $50 million to $52 million. Analysts had expected the intrusion-detection vendor to make a profit of 15 cents per share on revenue of $65 million.

Network security vendor Check Point Software Technologies Ltd. in Redwood City, Calif., also warned investors last week that while its revenue would be up sharply from the same period last year, it would fall slightly below analysts' expectations, reaching about $140 million.

Both companies blamed a slowdown in corporate spending for the lowered earnings forecasts.

The warnings sent both companies' stock prices plummeting and hammered those of other computer security firms.

ISS, which at its 12-month peak traded at more than $108 per share, lost more than 40% of its value on July 3, when it dropped to just over $20. On the same day, Check Point dropped more than 12 points to a little over $44, well short of its 52-week high of $118.

Other computer security stocks that were caught in last week's downdraft included those of Network Associates Inc., which dropped more than 6%; RSA Security Inc., which fell nearly 8%; and Certicom Corp., which declined more than 5% to less than $3 per share, well below its 52-week high of more than $47.

The earnings warnings — and the sell-off that followed — show that the security sector isn't as protected from the economic slowdown as previously expected, said Charles Kolodgy, an analyst at IDC in Framingham, Mass. Analysts once argued that security spending would remain relatively untouched because of heightening hacker threats and data privacy issues.

"I thought the security sector would bold up better than some of the other areas," Kolodgy said. Instead, the deferred spending, delayed upgrades and canceled projects that have affected other parts of the high-tech industry appear to have hurt the security sector as well, he said.

For example, during the past several weeks: Hayward, Calif.-based Certicom, which sells security software to wireless Internet providers, said it would cut its workforce by 30%; Seattle-based Watchguard Technologies Inc. laid off 16% of its workforce; and shares of U.K.-based Baltimore Technologies PLC briefly dropped to less than $1 after it announced layoffs. ▶

Job Insecurity

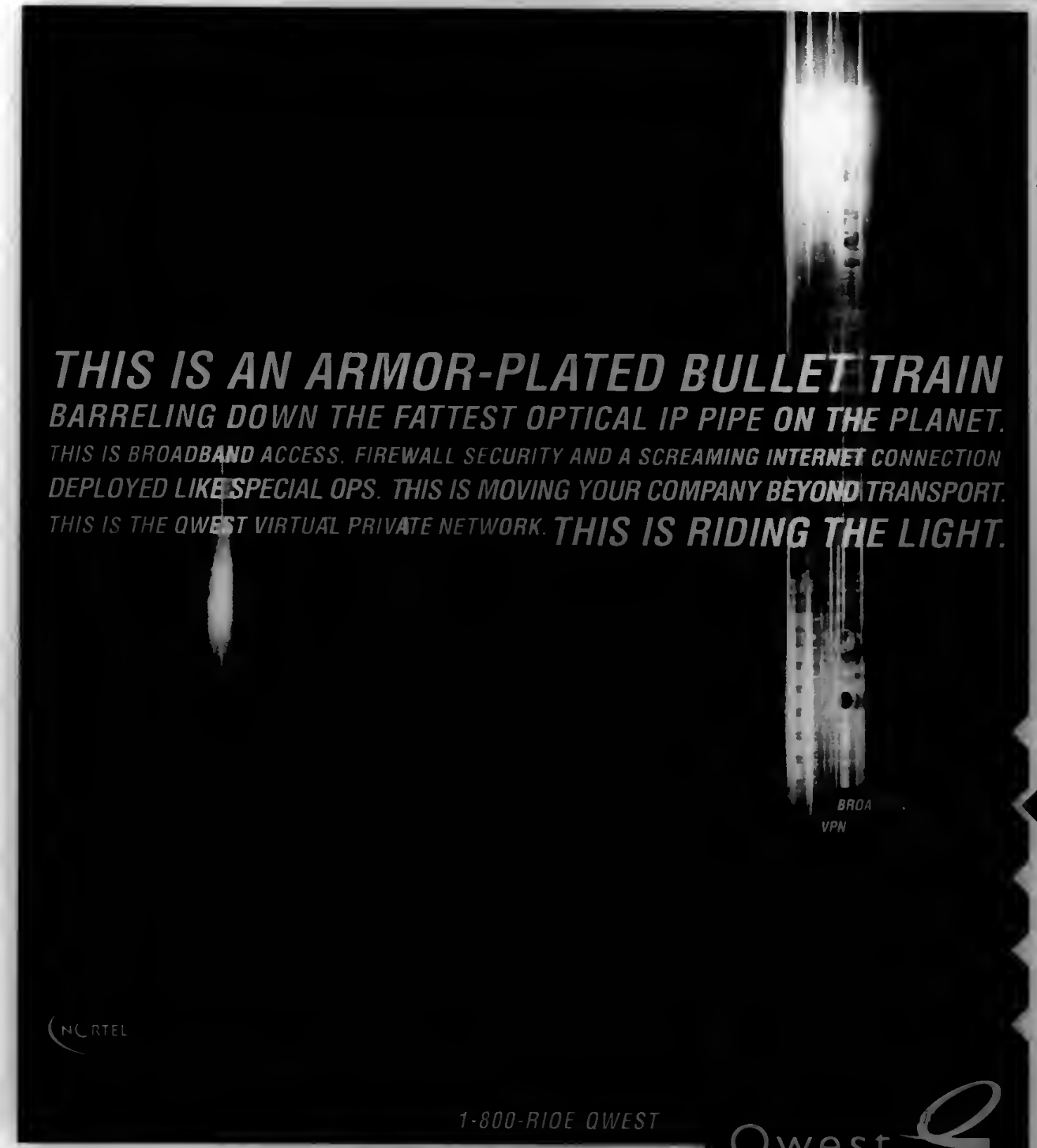
A sampling of security firms that have resorted to layoffs:

Pilot Network Services Inc.: Laid off all its workers and suspended normal operations in April

724 Solutions Inc.: Cut workforce by 12% last month

Entrust Technologies Inc.: Made 30% cut last month

F-Secure Corp.: Laid off 95 of its 445 employees in April



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MARYFRAN JOHNSON

Knowledge Quest

YOUR COMPANY'S SECURITY NEEDS are as unique as your fingerprints. So where do you turn for the exact answers you need? You talk to your peers, attend conferences (when travel budgets allow), surf the media in print and online, listen to vendors and pundits, test products and hold your breath a lot.

One big reason it's difficult to exhale: Adequate budgets to cover your security needs are rare. Datamonitor, a global market analysis firm, estimated recently that the total cost of online security breaches to U.S. corporations runs to $15 billion annually. Yet only 30% have implemented enough protection, and half of those businesses spend less than 5% of their total IT budgets on security.

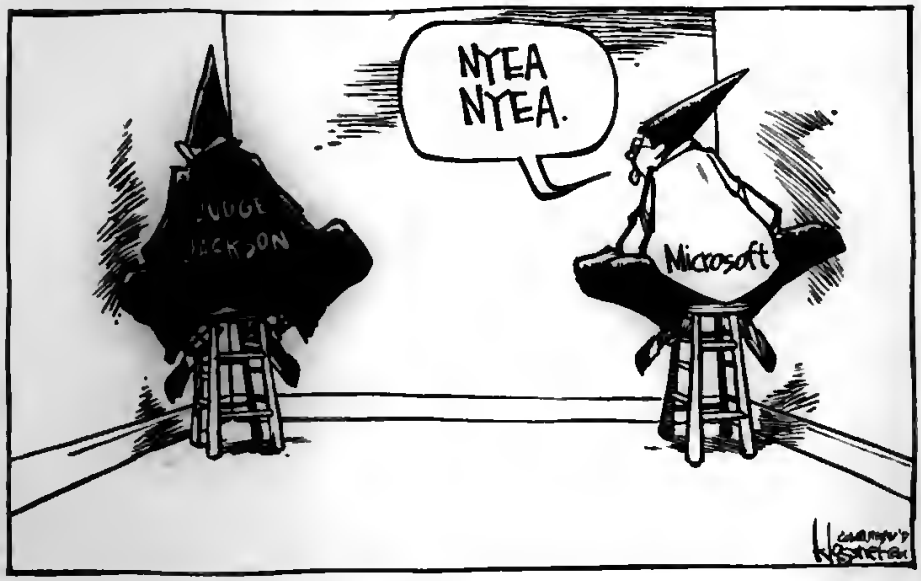
MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

On your mental checklist of "Security Things to Worry About," the topics must move around quite a bit. One week, it's a virus rampage affecting e-mail servers nationwide; the next, it's another revelation about the havoc vengeful employees can wreak on internal networks. If you had to name your No. 1 security concern a month from today — with absolute certainty — you probably couldn't.

That makes your information needs much more dynamic than ever before. You don't need a random smattering of interesting articles about IT security as much as you need a center of knowledge that keeps growing. That's why, in the first installment of our new monthly In Depth series on enterprise IT topics and technologies, two-thirds of this issue, starting on page 33, is devoted to an exploration of the risks and rewards of enterprise security. More important, the online parts will expand into a knowledge center worth returning to as your needs change.

For example, one of our In Depth print stories ("False Alarms," page 42) probes the managerial ups and downs of working with intrusion-detection systems (IDS). The companion online-only component supplies IDS product data plus an expert research paper about some inherent flaws in these systems. In that same fashion, each story in the package is linked to a richer set of dynamic resources online at *Computerworld.com*.

In future installments, we'll tackle other IT topics. Let us know what you'd like to see in these knowledge centers. We'll do our best to help you learn more and worry less. ◗



PIMM FOX

Want to Save Some Money? Automate Password Resets

HOW MANY applications do you support? In 1995, IT departments supported an average of 25 per user. Now, that number is somewhere between 100 and 200. The cost of purchasing those apps has long been absorbed, but ongoing support requirements are costly, ubiquitous and cover mundane tasks.

Indeed, the second most costly request to an IT help desk is to reset a password (about $14 to $28 a pop, according to Gartner). Six years ago, about 25% of help desk calls were about passwords, and having a single password and user ID (or single sign-on) for all applications was the Holy Grail.

PIMM FOX is *Computerworld*'s West Coast bureau chief. Contact him at pimm_fox@computerworld.com.

Today, password resets account for only 19% of help desk calls, but that's still the second highest request after those for more RAM to run popular programs — and single sign-on still hasn't solved the password reset problem.

Nevertheless, improving the password reset function can save IT much-needed money at a time when IT budgets are under siege.

Unfortunately, there have been two culprits holding back change.

The first involves organizational risk management. Kris Brittain, research director at Gartner, says she recently visited a financial services organization that was so concerned about a possible breach of security that it changed the frequency of password resets from every 90 days to every 30 days. In addition, you couldn't choose a previously used password for at least six months. "Calls to the help desk for password resets jumped 50%," Brittain says, and employees routinely used sticky notes on the fronts of their monitors to remember their passwords.

How secure is that?

Clearly, a sane password policy must take into account that many users have a corporate LAN

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identification and password, passwords for a variety of Unix machines and a database password.

Better to place your risk-management assessment in the context of IT support by determining how much it will cost if, say, a quarter of your employees start calling the help desk to reset their passwords.

The second culprit is the lack of an appropriate technology to maintain password security while giving users the tools to self-select and reset passwords. But several technologies are removing this stumbling block.

For example, Support.com in Redwood City, Calif., has integrated P-Synch password management software into its support automation offering. That's because "it's a quick and compelling return on investment for companies to slash the amount of time a help desk spends resetting passwords," says Gary Zilk, product marketing manager at Support.com.

So, don't hesitate; automate. And don't forget your password. After all, no one minds safe cost savings.

DAVID FOOTE

Companies Need Security Pros With More Varied Skills

COMPANIES THINK about their security practices a lot like we think about going to the dentist. We have to go, but we don't want to; we'll put off painful yet necessary gum surgery on the gamble that our teeth won't one day fall out. But then we see someone with no teeth and become frightened enough to schedule an appointment. And flossing is not unlike changing our user passwords: We're supposed to do it regularly, and it certainly makes good sense, but . . .

DAVID FOOTE is founder and research director of Foote Partners LLC, an IT workforce research firm and security management consultancy in New Canaan, Conn. Contact him at dfoote@footepartners.com.

Corporate security is at a crossroads. Companies must stop fiddling around and take a hard line on what's negotiable and nonnegotiable for protecting their most valuable assets. Amid all the latest news about privacy, hacked networks and virulent electronic "love letters," a more interesting story is what's been happening in security-related employment. It has one of the widest supply-and-demand gaps of any IT job category: Employers report vacancy rates as high as 90%.

But here's the worst part: Employers aren't really sure what they should be looking for in hiring security professionals. Meanwhile, Rome burns.

While knowledge of the technical side of security is obviously a big factor in filling these positions, here are equally critical success factors in both high- and low-level security jobs: being adept at corporate politics; possessing business skills and aptitudes; having good relationship management skills; and being able to market, sell and negotiate outcomes. That's because we desperately need to motivate managers to take on security with the same vigor they reserve for, say, new product development. You can't do that with a bunch of techies running security, which is the case in many places.

Security professionals will always need to master newer technologies for protecting IT systems. But they're under increasing pressure to understand their company's entire business and pinpoint the security breaches that are most threatening to the bottom line.

In the next few years, security managers will need to focus on complying with new security and privacy regulations in health care and finance; developing stronger user-awareness policies; addressing a bigger basket of security issues, especially the growth of wireless access; running business-to-business exchanges; and defining the role of application service providers.

Companies should be recruiting a breed of security professional who possesses softer skills, including a positive attitude, diplomacy, patience, attention to detail, tenacious abstract problem-solving ability and a strong will. This will help them gain visibility and acceptance in selling hard-line ideas.

As for technical areas, security pros now need network engineering and operations skills, regardless of their specialization. New security niches — forensics and intrusion detection, for example — are hot, and having a niche certification is desirable.

But employers must scrutinize job candidates for how they work with others, on teams and with customers, since that's important in cutting through resistance and raising security mind share. And why shouldn't they hire reformed hackers, who have pure tech skills, tenacity and creativity? Casting a wider net will narrow the security employment gap and update the function.

Corporate debates on policies relating to security standards, user awareness, remote/wireless access, acceptable authentication methods, risk management, privacy trade-offs and outsourcing need expediting. This will be done only with a more astute, hands-on security team that speaks to the business persuasively, knows how to finesse a corporate agenda and has the chops.

READERS' LETTERS

TCO Is More Than a Financial Benchmark

THANKS TO Jaikumar Vijayan for attempting to move the image of total cost of ownership (TCO) past that of a financial benchmark that simply generates a dollar figure ["The New TCO Metric," Business, June 18]. CIOs must be able to quantify the total costs juxtaposed against level of service and to address opportunities and savings both in the business operation and the IT organization. This requires constructing systems and processes for tracking current service levels and end-user satisfaction. Only with both TCO and service measurement can the CIO shift from meeting with the IT department over technical implementation details to giving IT the information required to talk at the CEO level about the real business of the company.

Kevin Cavasco
Burke, Va.
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Another Mighty Ant

THE ARTICLE "Ant Colony IT" [Future Watch, June 18] was quite interesting, though it failed to cover perhaps the largest real application based upon the concept. The Bullet Train Operation Simulator has a capacity of 40,000 agents, out of which more than 30,000, including trains, signals and train sensors, simulate any what-ifs in the train operations. The central control computer can't tell whether the connected system is the real train system or the simulator.

Soichi Yaskawa
Yaskawa Electric Corp.
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yaskawa@yaskawa.co.jp

Bad Title, Good Info

WHILE I HATED the exhortative title of Peter G.W. Keen's column "Go Mobile — Now!" [Business Opinion, June 11], I enjoyed reading the answers to the quiz. Even where I knew the answer, I got more information.

Gobind Tanaka
Los Angeles

Software 'Landlords'

IF YOU BUY a house that causes you harm, the costs are yours. If you rent a house that causes you harm, the costs are the landlord's. I'm not a lawyer, but it would seem to me that if software vendors are going from selling to renting software, they could realistically be sued for damages caused by their software ["Don't Be Fooled by the Allure of 'Renting' Software," News Opinion, June 25].

Paul Olson
Director, computer operations
Total Info Services
Tulsa, Okla.

More Letters, page 30

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

FRED WIERSEMA

How Market Leaders Reach Out to Customers

THERE'S LITTLE DOUBT that market leadership and the savvy use of IT have been synonymous for the past decade. The firms that are dominating their industries today — growing two to three times faster than their peers — were among the first to exploit IT to reengineer their business processes and eradicate waste from operations in the early 1990s. In doing so, they laid the foundation for their current success. My latest research also ranks them among the most astute deployers of the Internet. Moreover, these firms are in the forefront of using IT to cope with today's biggest business challenge: a scarcity of customers.

FRED WIERSEMA is author of the new book *The New Market Leaders: Who's Winning and How in the Battle for Customers* (The Free Press) and a fellow at business strategy and technology firm DiamondCluster International Inc. in Chicago. Contact him at Fred.Wiersema@diamondcluster.com.

In today's crowded markets, the problem isn't building capacity or generating new products and information. The real bottleneck is finding customers for our prodigious output. Of course, that condition becomes exacerbated in a slow economy, with lots of suppliers clamoring to woo customers. Rising above the din, the new market leaders recognize that customers get flooded with choices and information, yet have less time and patience to sort through the abundance of offerings. These leaders come to the rescue by craftily using IT to get and hold customers' attention, sometimes offering an added value that keeps customers coming back.

Consider how market leader EMC helps customers stay on top of a little-mentioned corollary of Moore's Law: information storage requirements double every 18 months. Not only do EMC's innovative storage products scale well, the company's true appeal is that it allows customers to sleep better at night. Each of EMC's 45,000 data storage systems in operation worldwide is connected to one of three "Call Home" centers in Massachusetts, Ireland or Japan. Whenever an EMC unit anywhere in the world senses something wrong, it automatically reports the problem to the nearest center, and potential disaster is averted. Service to prevent, not repair, is indeed service par excellence. EMC's remote monitoring and diagnostics capability has created a virtual, umbilical link with precious customers.

Or consider UPS. In the past decade, the company has used IT to transform itself into a high-tech, customer-obsessed powerhouse that's not just distributing goods, but also enabling global commerce. Particularly striking is the company's ambitious and foresighted move to use wireless technology to boost the value of its services. The delivery information acquisition device (DIAD), is a handheld computer that has helped turn UPS into the world's largest user of mobile communications technology. It allows UPS drivers and handlers to follow each package and feed large amounts of tracking data into the company's massive data centers in New Jersey and Atlanta. Now in its third generation, DIAD has cut the firm's cost of tracking to less than 10 cents per package. But most importantly, UPS customers now use this tracking information to cut their inventories, manage their systems and keep their receivables and late payments under control. UPS is deftly using IT to boost its services' appeal and value.

These and many other new market leaders demonstrate that the imaginative and bold use of technology is the foremost way to transform customer scarcity into customer abundance. ◗

MICHAEL GARTENBERG

Microsoft and The IT World: After the Verdict

THE PHILOSOPHER Friedrich Nietchze said, "That which does not kill you makes you stronger." With last month's appeals court ruling on the antitrust case, Microsoft has survived its most critical challenge to date. So what does the future likely hold, and how does this victory affect Microsoft's customers and competitors?

MICHAEL GARTENBERG, former vice president and lead Microsoft analyst at Gartner Inc., is an independent technology analyst and consultant. Contact him at mikeatmail.gartenberg@mindspring.com.

First, the company must resolve its legal issues with the Department of Justice (DOJ). It's likely that with a new Republican administration, Microsoft can go back to the negotiating table one more time and hammer out a new consent decree and come to terms with the DOJ and the attorneys general for the states involved in the case. If that happens, it will smooth the path for the launch of Windows XP, Xbox and .Net.

Bolstered by the court verdict, Microsoft will continue to integrate new technologies into its products. Both the new messaging client and media technologies will remain parts of Windows XP, and the HailStorm Web services initiative will expand at a much greater pace. Integration does offer benefits to users in terms of usability and reliability, and the vendors that compete with Microsoft in these areas will need to carefully evaluate how these integrated technologies will affect their customers' buying patterns.

It's also likely that as a result of the verdict, the company will no longer pitch the larger .Net project as a totally platform-neutral technology. Instead, the Web-based platform for software services will become more tightly coupled with XP for the best possible user experience (though Microsoft will continue to offer parts of the .Net framework and functionality on other platforms).

For organizations that have been dealing with Microsoft and awaiting an outcome of its legal battles before deploying new technologies, the worst of the battle is over. But as Microsoft shifts to services and nonperpetual license agreements, it's time for Microsoft customers to decide how they want that relationship to change, which technologies they will roll out and when. Critical planning decisions regarding enterprise projects such as the rollout of Office XP and Windows XP must be tied into license planning in order to minimize both long- and short-term acquisition and maintenance costs. Decision-makers must question the short-term cost benefit of signing up early vs. maintaining older technologies longer, and they must address the issues of being locked into a platform that's rented rather than purchased.

It's been a tough year for Microsoft, but even with the specter of a breakup looming large, the company focused on the next generation of Windows and Office, announced plans to enter the world of consumer electronics, and began the long road that will shift it from shrink-wrapped software to "software services." The appellate court's verdict was a victory for Microsoft, and the harsh rebuke of Judge Thomas Penfield Jackson, who issued the breakup order, was the icing on the cake.

With its legal issues largely behind it, Microsoft is now poised to face the challenges of the ever-changing technology landscape. By allowing the free markets to decide the success of technology standards, the court has restored a level playing field by not crippling Microsoft and allowing it to compete effectively in current and future markets and retain control over features and technology integration. This is something all companies must be allowed to do. Now, it's up to user organizations to embrace or reject products as they see fit, and the competition will be in the execution of technology strategies, not legal strategies. ◗

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Over the past 10 years, I've seen some amazing management moves in companies for which I have consulted. Some IT managers couldn't get NetWare out of their companies fast enough. Most of the time, their reasoning wasn't definable. I was left to assume it was a combination of not understanding technology and feeling warm and fuzzy. I'm convinced it rarely, if ever, had a business case. Now, when I heard about the change in licensing for Microsoft products like Office ["Microsoft License Shift Creates Turmoil," News, May 21], I started watching for some sort of product pricing announcemeots from Corel. Surely this would be a good time to garner some broader appeal by offering great licensing deals. I heard nothing. Then it hit me: Microsoft had filed with the SEC to help bail out Corel. Say goodbye to options. It's hard to keep inoovating when your revenue sources dry up. Then there's all that direction from your new partner. Soon those who don't need "warm and fuzzies," like small to medium-size companies and consumers, will have no other options. Higher costs and forced upgrades we don't want or need will be the norm. Directly or indirectly, we'll all pay this price. So next time one of you IT managers gets frustrated because of rising costs, don't blame Microsoft. Microsoft saw a problem years ago and focused its efforts on marketing to the warm-and-fuzzy crowd. It effectively did its job. Did you?

Martin Zinaich
Lead systems analyst
Tampa, Fla.

Dealing With Oracle

Congratulations to *Computerworld* and IDG for standing up to Oracle's hard-line tactics in pulling its advertising ["The Power of You," News Opinion, June 25]. The Oracle Applications Users Group (OAUG) knows just what you're going through. Last year, the OAUG membership overwhelmingly rejected Oracle's proposal that the OAUG fold its North American conferences into Oracle's AppsWorld event. (*Computerworld* ran a terrific cartoon about the situation in the June 11 issue, illustrating OAUG selling hot dogs outside Oracle's event.) Rather, the membership indicated that the OAUG should maintain its independence; continue producing its own independent, user-focused conferences; work collaboratively with Oracle; and actively involve Oracle in OAUG events. The OAUG then asked Oracle tn provide 60 or so development staff to deliver roughly 55 "Oracle Directions" and Q&A sessions at the OAUG's fall conference. Oracle has refused to provide even this minimal level of support. The OAUG is now surveying its membership to determine how the user group should move forward. It will hold its fall conference in San Diego for four days, with or without Oracle's participation — but we find it difficult to believe that Oracle will refuse the opportunity to listen to more than 4,000 of its customers. One wonders how long a vendor can stay in business when it so blatantly ignores the voices of its users.

Laura Bray
Communications manager
Oracle Applications Users Group
Atlanta

The purpose of advertising is to promote a company, product or viewpoint for the benefit of the advertiser. The selection of a particular publication should be to reach a certain demographic — that publication's readership — not to reward the publication. *Computerworld* is to be applauded for its editorial independence. Oracle should evaluate its advertising objectives and strategy. I hope that this was the subject of the meetings between IDG publishers and Oracle representatives.

R.K. Davis
President
Davis & Co.
Boca Raton, Fla.

How Palm Can Learn From History

To me, IT history suggests that Palm should run in binary mode, with two independent divisions ["Past May Dictate Palm's Next Move," News Opinion, June 25]. One would push software, and the other hardware, just like Sun, HP and IBM. Microsoft is moving slowly into hardware through keyboards, mice and gaming terminals and Compaq into software through clustering. But Palm should avoid the IBM mistake of the early 1980s that led to the creation of Microsoft and Compaq. It should get together with all the major PDA hardware manufacturers, create a standard architecture for these devices and use its lead in this area to develop along those standards. This will commoditize the hardware for PDAs and wireless devices, but the economies of scale that result will drive wireless/PDA component prices down and will create a huge worldwide market. Today's PC makers are proof that standardization works. Palm Software, like Microsoft before it, would then ride the hardware success by writing the best Palm OS for the standards, selling it very cheaply to gain market share and making money on the upgrades and potential applications running on top of the operating system. This way, the "integrator's dilemma" becomes a synergy opportunity.

Athmane Noulouat
E-business solutions architect
SAP America Public Services
Foster City, Calif.

Lawmaker Misconstrues Antitrust

Richard Armey's comment that "our antitrust laws should not be used to hold our most successful companies back to give the competition a chance to catch up" is absurd ["Appeals Court Reverses Microsoft Breakup Order," *Computerworld.com*, June 28]. The precise purpose of antitrust laws is to guarantee a level playing field for all. Companies that violate that principle pay a price.

Larry Teitelbaum
Manhattan Beach, Calif.

Digital Copyright Law Isn't Cynical

Alex Torralbas does a pretty good job of hitting on the reality of the Digital Millennium Copyright Act ["Bad Legislation Opens Web to Corporate Lawyers," News Opinion, June 18], but he omits the theory behind the act. He's on target that the RIAA will say and do anything to keep its coffers stuffed. The theory behind the DMCA, though, was to ensure that the owners of the underlying copyrighted works receive fair compensation for their livelihood.

Steven Rubenstein
Antioch, Tenn.

Vexed by Mind Games

Using sophomoric miming tricks only perpetuates the problem of getting professional salespeople to visit your site ["Message to Vendors: Drop the Mind Games," Security Manager's Journal, June 25]. Certainly there are salespeople who try "sales-school tricks" in an attempt to get an appointment or a sale, but to publish an article that enables this to continue is irresponsible.

Harold Palmer
Consultant
Bloomington, Minn.


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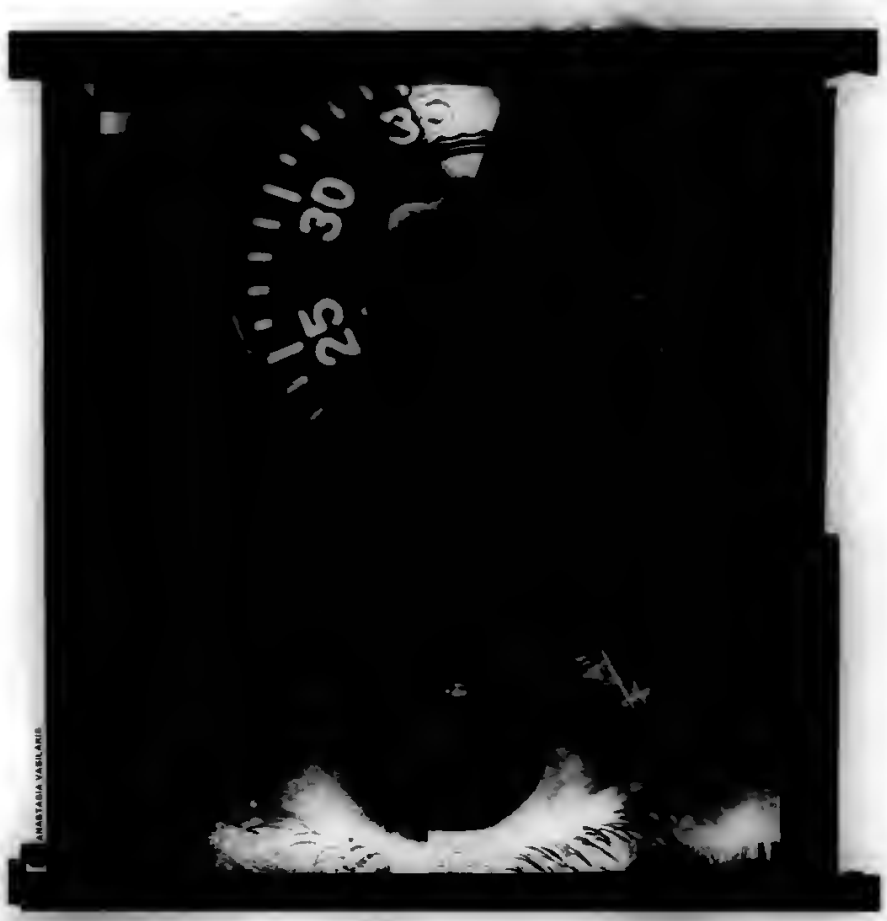

ANASTASIA VASILAKIS

Risk & Reward

As e-commerce becomes more important, so does security — to control the risk *and* profits.

EDITOR'S NOTE

Finding Answers

MUCH AS I LOVE the Web, it has its weaknesses. It's hard to take on airplanes, for example, and reading anything really long can make your eyes cross.

Print, on the other hand, is portable and easy on the eyes but isn't so great if you need to dig for more detail or find answers to specific questions a story raises in your mind.

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Kevin Fogarty is Computerworld's *features editor. Contact him at kevin_fogarty@computerworld.com.*

ONLINE

MORE IN DEPTH STORIES

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The Enemy

Though many firms are focused on preventing external breaches in computer security, the greatest threats often lurk within a company's workforce.

By Dan Verton

ANASTASIA VASILAKIS

IT'S JANUARY 2000, and the world hasn't imploded under the weight of the Y2k problem. Planes aren't falling out of the sky, and trains aren't careening off their tracks. But in a few short months, Craig Goldberg's start-up will come face to face with a more sinister threat that will take it to the brink of disaster: cybercrime.

The CEO of Internet Trading Technologies Inc. (ITTI), a New York-based technology subsidiary of stock trade regulator LaBranche & Co., had just completed a second round of funding that helped fuel an expansion of the company's IT staff. Within two months, Goldberg hired a half-dozen more software developers and tapped a CIO with 15 years of experience to take on the role of chief operating officer.

Trouble lurked beneath the surface, however. Two of the company's software developers approached ITTI's new COO and demanded that the company "pay them a lot of money or they will resign immediately and not provide any assistance to the development team," according to Goldberg, who eventually succumbed to the demands.

But that wasn't enough for the two developers, who left the premises, demanded more money and stock options and threatened to let the development work founder. "It felt like we were being held up," says Goldberg. Faced with the equivalent of a cyberhijacking, he refused to budge, and the developers were dismissed.

The first denial-of-service attack hit the next morning, a Thursday, and crashed the company's application server. Somebody sitting at a computer in a downtown Manhattan Kinko's had gained access to ITTI's server using an internal development password. The server was brought back online, only to be hit again two minutes later, says Goldberg. Passwords were changed, and development systems were air-gapped — physically disconnected — from the Internet. But the attacks continued through the weekend.

The situation soon became critical. "If the attacks contin-

ued to go on, we would go out of business," Goldberg says. He called in a security consulting firm and the Secret Service.

The last attack, which occurred Monday morning, hit as federal authorities were installing monitoring equipmeot on ITTI's networks. Authorities traced the attacker to a computer at Queens College in Flushing, N.Y., where one of the former employees was a student. Witnesses placed the individual at the specific computer at the precise time of the attack. Within an hour, the Secret Service officials had their man. No evidence or charges were brought against the other former employee.

Stress Points

Experts agree that cybercrimes, such as the one perpetrated against ITTI, are ofteo the result of a combination of factors that are unique to the modern IT workplace. Although most managers helieve, as Goldberg says, that "security is hoth about risk management and hiring honest people," experts in criminal psychology say the onus is often on managers to take action to prevent current and former employees from lashing out in the form of cybercrime.

Jerrold Post, a professor of psychiatry at The George Washington University in Washington, develoed the "Camp David profiles," which focus on understanding the psychology of terrorism and political violence. They were developed for then-President Jimmy Carter. Post says cybercrime can he seen as a subset of workplace violence, where employees become frustrated but have no way to mitigate the stress.

"In almost every case, the act which occurs in the information system era is the reflection of unmet personal needs that are channeled into the area of expertise," says Post. "Almost all of these people are loyal at the time of hiring, so this isn't a matter of screening them out."

Post acknowledges that only a small percentage of IT workers who share a commoo set of personality traits actually commit crimes. However, for those who do become cyheroffenders, their actions are often the result of not having skilled managers who can alleviate workplace stressors, he says.

Post suggests several approaches that managers can take to both identify and alleviate those stressors for employees, including providing more distinct career paths. He also says managers need tn acquire better leadership skills to help people feel like they really matter to an organization.

Bill Tafoya has spent the hetter part of the past 25 years profiling criminals. A former special agent at the FBI and now a professor of criminal justice at Governors State University in University Park, Ill., Tafoya says many IT workers today sometimes feel browbeaten by their employers.

"Most of the time, however, they merely become cynics who infect co-workers with their misanthropic view and undertake career-long, one-persoo work slowdowns," he says.

Managers often mishandle difficult situations, he says. "In some organizations, when personnel falter and are subsequently disciplined, the records department is a favorite reassignment [that] management uses for purposes of punishing the miscreant," Tafoya says. "I ask you, who is being punished?" Career paths need to he developed for IT personnel who handle a company's crown jewels — its information, he adds.

Obviously, not all cybercrimes occur as a result of frustrated employees. Many computer security breaches are the acts of dishonest people who crack into systems from the outside using the Internet.

Sometimes, they get a little indirect help from unsuspecting employees.

In February, a major bank in the Northeast whose name is being withheld for security purposes discovered that unauthorized purchases were being made oo the Internet using its customers' information. The bank called the Emergency Response Team (ERT) at Internet Security Systems Inc. (ISS), an Atlanta-based security firm. After 131 hours of forensics processing, both ISS and bank officials suspected that a mole in the company was helping the attacker.

"The client was convinced there was a collaborator and was ready to terminate a number of individuals, as well as contractors," said Allan Fideli, director of the ERT and the former chief of worldwide security at IBM. However, Fideli and another analyst eventually narrowed down the perpetrator to a contractor in Europe who had stolen passwords from his mother-in-law, who was an employee of the bank.

Scott Christie, an assistant attorney at the U.S. Attorney's Office for the District of New Jersey in Newark, says a lack of oversight is a key enabler in many cybercrime cases.

"Without any oversight, [criminals] can do what they want without fear of being caught," says Christie.

Richard Hunter, an analyst at Stamford, Conn.-based Gartner Inc., says managemeot inattentioo can be a contributing factor. "Some managers are inattentive to the point that they do not even check résumés for people being hired into positions where sensitive data is available," says Hunter.

Although Post acknowledges that the majority of hackers are little more than garden-variety criminals, the world of cybercrime does have its share of Lee Harvey Oswalds, he says. The most recent example is Abraham Abdallah, a 32-year-old Brooklyn busboy who in March managed to pull off the biggest Internet ideotity heist in history by stealing the online identities of 200 of the richest people in America.

There is little difference in motivation between criminals like Abdallah and Oswald, says Post. "To steal somebody's identity is to escape from one's place of insignificance. It's a special species of assassination," he says.

For Tafoya, the assassination metaphor goes too far. "Those who have been so victimized see the theft of their identity as more akin to rape," he says.

According to ITTI's Goldberg, however, cybercrime is about greed. "We talked and negotiated in good faith, but at a certain point in time, it becomes extortion," he says.

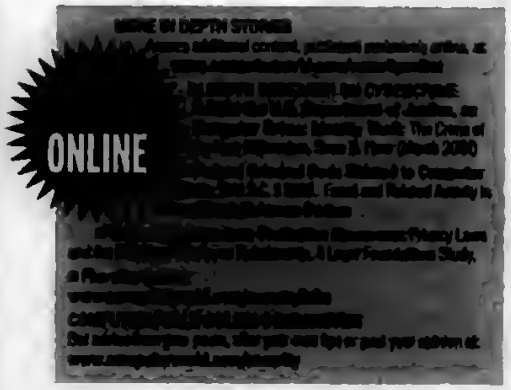
What the Experts Say

1. **Most experts recommend that** companies offer regular training programs on network security procedures, information handling techniques, how to deal with social engineering techniques used by outsiders, the importance of physical security standards and Web/computer asset usage guidelines.

2. **Managers should receive training** in how to handle disgruntled employees and make sure clear career paths for IT personnel are established. Close attention should be paid to layoffs and compensation packages.

3. **Clear security guidelines should be published** and, if necessary, employees should be asked to sign nondisclosure and computer usage agreements. Internal information should be classified and shared according to its sensitivity and employee need-to-know parameters.

4. **Companies should also** encrypt sensitive communications, use network monitoring tools, enforce security practices and separate IT development network environment from sales and support divisions.



Within

Many see XML as a miraculous way to integrate the Web and back-end data. But few realize how powerful a force they're letting through the firewall and how big the risk is from hackers who can write hostile code disguised as HTML.

By Deborah Radcliff

JUST WHEN YOU THOUGHT the uncontrolled forces of the Web were finally getting manageable, along comes multidimensional data. We're talking XML, which unlocks data from many sources for many destinations as no markup language has done before.

But this new way of handling data also opens up new security vulnerabilities. Already, IT managers are bracing for a new onslaught of malicious code, data hijacking, viruses, graffiti, defacements and buffer overflows.

XML is spreading to back-office systems, business exchanges and wireless applications. In the next two years, XML will be used on more than 50% of Web sites, according to some researchers.

Even two years ago, companies like Marriott International Inc. had begun making their back-office applications more extensible through XML. And progressive businesses like ETrade Group Inc. and Alaska Airlines are now announcing wireless trading and reservations through XML-based systems built by companies like Everypath Inc., a mobile application framework vendor in San Jose.

Unlike HTML, XML can link an unlimited combination of data types by tagging them with a standard, machine-readable language to define each piece of data and determine what it does.

For example, XML can be used to dynamically link inventory data stored in an arcane format in a back-end database with specific spreadsheet columns that allow customers and partners to slice and dice numbers in real time.

Developers can ose XML to create interactive Web sites by dynamically linking the data stored in their systems or from anywhere in the public domain.

XML is the basis for an emerging consumer privacy framework called Platform for Privacy Preferences, introduced by Microsoft Corp. and several small vendors this year. And XML shows promise of finally making public-key infrastructures and digital signatures interoperable.

But XML has a dark side. The powerful capabilities of these data sets and dynamic links open up a whole new can of security worms because the code defined by XML tags can carry virtually any payload through the firewall unchecked.

Simply put, firewalls and filters trust that the XML tags are honest descriptors of the code they define, so malicious XML code could get a free ride into almost any organization.

Too Much Trust?

The World Wide Web Consortium (W3C), whose members are mostly technology and telecommunications vendors, denies any suggestion that XML opens up new security problems. "XML is just a markup . . . used to convey information and build applications," says Joseph Reagle, a policy analyst at the W3C.

But as with other languages that support executable code, the problem is what developers do with XML. "How you convey information and build applications will, of course, have security concerns," says Reagle.

It's this model of trusting developers to do the right thing with XML that worries IT professionals.

"Trust is the darned key to all of this," says Perry Luzwick, director of information assurance architecture at Herndon, Va.-based Logicon Inc., an IT company owned by Los Angeles-based Northrup Grumman Corp. "There's no control of the input in an open XML environment unless you could somehow check wrappers [tags], but that's cumbersome. . . . There's no way to say that metadata in the tags represents what it says it does."

It's too early to tell how widespread XML-enabled exploits will be in the next few years. So far, exploits are rare because there's no XML on the client end yet, says Ryan Russell, incident analyst at security intelligence firm SecurityFocus Inc. in San Mateo, Calif. But Internet Explorer has a heavy XML feature set in V6.0, to be released later this year.

Payet Guillermo, chief technology officer at Ocean Group, an Internet engineering firm in Santa Cruz, Calif., says the first wave of XML attacks will resemble malicious code attacks conducted in HTML, more than 40 of which are listed on the advisory pages of the Pittsburgh-based CERT Coordination Center. "Just as there are a bunch of browser exploits that use malformed HTML and Java to crash your browser or take control of your machine, we'll probably see the same types of attacks aimed at XML parsers . . . and the applications using the parsed data," says Guillermo.

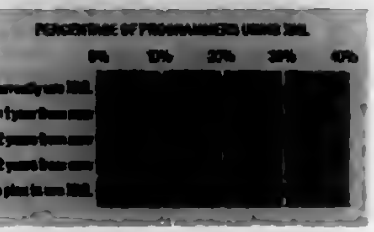
Text-based attacks will also re-emerge, predicts Dan Moniz, a research scientist at peer-to-peer application developer OpenCola Ltd. in Toronto.

A text-based attack is accomplished by inserting complicated data streams — symbols, numbers and characters — anywhere in applications, including buffers, or Web addresses. Until XML, text-based attacks were successfully filtered. But the XML framework introduces a more complex character set routine, Unicode, to facilitate more complex data typing. Unicode uses 16-bit character sets instead of ASCII's eight bits.

In May, the first Unicode text-string exploit (against Microsoft's Internet Information Servers) was posted on CERT's advisory pages (Vulnerability Note VU#111677).

"In Unicode, there are an infinite number of ways to say something. So programs that block bad code can't work with Unicode, because they can't think of all the ways the bad code could be written," says

When do you plan to use XML to publish your Web site?



SOURCE: EVANS DATA CORP., SANTA CRUZ, CALIF., SPRING 2001

The Threat

The Problem With Power

According to Peter Lindstrom, an analyst at Hurwitz Group, **the power of XML comes from its flexibility and extensibility paired with its semantics and structure.** *But these same elements, he contends, also cook up new security issues. In a white paper entitled "Introduction to XML Security" (June 2001), Lindstrom cites four recipes for XML disaster. Here are those risks and ways to defend against hostile XML executables:*

DANGERS	DEFENSES
1 DATA SHARING The "cookbook" approach to data sharing – one that involves many ways to share data – makes it difficult to validate the source of every piece of information and the accuracy of the information itself.	**1 Don't trust inbound data.** ■ Check data sizes on input. ■ Test untrusted XML-wrapped executables in a "sandbox" – a separate area of the network – to make sure the code isn't malicious.
2 DATA LINKING Presenting data in the form of links via Web addresses overextends security mechanisms.	**2 Set up a local store of Document Type Declarations (DTD) either at or near the firewall and keep it updated like you would virus signatures.** DTDs are XML syntax-based data describers that will likely be linked to you from other sources. If these DTDs were altered outside your network, a local DTD store would notice a conflict and stop the process, says Dan Moniz, a research scientist at OpenCola Ltd. in Toronto.
3 TRANSPORT Firewalls won't stop XML, regardless of the application that's using it.	
4 STRUCTURE Even though XML instances can look exactly alike, they can be different under the covers. Placement of tags, use of white spaces and other style tweaks can introduce new ambiguities to the data sets.	

Bruce Schneier. In July of last year, Schneier, founder and chief technology officer of Counterpane Internet Security Inc. in Cupertino, Calif., published a white paper predicting an onslaught of text-based attacks exploiting the Unicode character sets. "Unicode is just too complex to ever be secure," he adds.

Indeed, protecting against any new XML-based attacks won't be easy because there are no checks to verify such complex data streams being pushed or pulled into business networks.

Don't count on filtering to help. Firewalls won't check XML-embedded data. And XML-encoded attack signatures won't show up in audit logs, says Dark Tangent, a white-hat hacker and organizer of the annual Def Con security conference for hackers in Las Vegas.

Safety in Standards

About the only thing IT professionals can do at this early stage is minimize their own development risks. The best bet is to carefully follow XML development standards and protocols coming from the Internet Engineering Task Force (*www.IETF.org*), the W3C (*www.W3.org*), vertical industry groups and vendor-developed frameworks like Everypath's, advises Peter Lindstrom, a security analyst at Hurwitz Group Inc. in Framingham, Mass.

And remember, you're not the only one trying to make sense of the XML paradigm. Even those in the know, like John Goeller, director of electronic trading at Credit Suisse First Boston in New York and chairman of a financial services XML working group, are struggling with more than a dozen XML protocols to come up with a universal standard suitable for financial trading applications.

Growing pains like these are common with all emerging technologies, says Dark Tangent. There's no way to know how the exploits will hit or when because programs support XML differently than they do HTML, he says. "It will take time for XML developers to get XML integrated correctly," he says.

ONLINE

MORE IN DEPTH STORIES

– XML is more than just a threat. It can also be a way to make common e-commerce work, using digital certificates.

– Check out stats on XML, its uses, defenses against it, and how to use it to your own advantage.

www.computerworld.com/securitytopics

# of XML

SOAP, Other Protocols Specify Security for XML

Microsoft's Simple Object Access Protocol (SOAP) has garnered a lot of attention, especially since it was submitted to the W3C as a possible standard for XML-based communication among object-oriented applications.

But privacy and data integrity protection specifications, missing in earlier versions of SOAP, also get a lot of attention.

SOAP authors, including Microsoft and IBM, addressed that lack of information in February, submitting a new set of SOAP security specifications to the W3C.

Based on XML, SOAP is used in middleware for communication among information systems built on different technologies.

Version 1.1 of the specification, announced in April of last year, let SOAP messages, which are based on HTML, sail freely through most firewalls. That gave legitimate business partners free entry to remotely activate code and exchange information. But it also extended the same welcome mat to hackers, said James Kobielus, an analyst at Midvale, Utah-based The Burton Group Inc.

DEFINITION

SOAP

An XML-based protocol that passes messages from one software component to another across the Internet, using HTTP, SMTP and other standard protocols.

The February extension to SOAP proposes a way to use the XML digital signature syntax to sign and authenticate SOAP 1.1 messages.

It also proposes definition of an extensible name space for adding to the SOAP header further security features, such as biometric signatures and XML encryption, as standards become available.

The W3C has appointed a working group to develop an open standard protocol similar to SOAP called XML-Protocol.

Although the SOAP specification is maturing, applications that require stringent security, such as securities trading, continue to use stronger protocols, such as electronic-business XML (ebXML).

That specification is a collaborative effort of an IBM-led consortium, the Organization for the Advancement of Structured Information Standards (OASIS), and the United Nations. That group is working on standards for authorization and access control, said Robert Sutor, IBM's director of e-business standards strategy.

Emerging in the next few months will be a road map to XML security, but "it will take coordination among the W3C, OASIS and other organizations in a way we haven't seen before," Sutor said.

– *Sami Lais*

Top 10 Security Mistakes

You may not be able to prevent serious break-in attempts, but you can at least avoid leaving your doors open at night. By Alan S. Horowitz

PEOPLE REGULARLY LOCK their houses, demand airbags in their vehicles and install smoke alarms in their homes. But put them in front of a computer, and you'd think the word *security* was magically erased from their brains. People are more careless with computers than perhaps any other thing of value in their lives. The reason is unclear, but observers agree that end users — and even some IT departments — can be pretty dumb when it comes to protecting computers and their contents.

The following are some notable, less-than-bright errors that people and IT professionals commit when it comes to computer security:

1 The not-so-subtle Post-it Note. Yes, those sticky yellow things can undo the most elaborate security measures. Too lazy to remember their passwords, users place them where they — and everyone else — can see them: stuck to the front of their monitors. Lest you think this is so obvious it's uncommon, Garrett Grainger, vice president of information systems at office supply manufacturer Dixon Ticonderoga Co. in Heathrow, Fla., estimates that of his several hundred end users, 15% to 20% regularly do this.

2 We know better than you. You may think that certain security measures are necessary, but not all end users agree, which leads them to do an end-run around you. "People blithely turn things off they think have a good reason to bypass," notes Frank Clark, network operations center manager at Thaumaturgix Inc., an IT consulting firm in New York. "Antivirus software is an example. They think it slows down their machine."

3 Leaving the machine on, unattended. Dan Bent, CIO at Benefits Systems Inc. in Indianapolis, says he's amazed at the number of users who leave their machines on, without protection, and walk away. Who needs a password?

4 Opening e-mail attachments (remember the Love Bug virus?) from mere acquaintances or even strangers. This one drives IT managers nuts. "Users open all their e-mail attachments before thinking," says Marie Phillips, manager of information security services at Amerisure Mutual Insurance Cos. in Farmington Hills, Mich. "We tell them to be careful about opening notes and attachments from strangers or when they get the same notes from several people, even those they know."

5 Poor password selection. If there's a bugaboo among security experts, it's poorly chosen passwords. Ken Hill, vice president of IT at General Dynamics Corp. in Falls Church, Va., recently attended a demonstration with about 20 of his top engineers and some anti-hacking experts from NASA. Within 30 minutes, the NASA folks broke 60% of the engineers' passwords. Paul Raines, global head of information risk management at London-based Barclays Capital, recommends that users take a common phrase and use its initials for a password. For example: "I pledge allegiance to the flag" becomes "ipa2tf." "That's a difficult password to break because it's a combination of letters and numbers," says Raines.

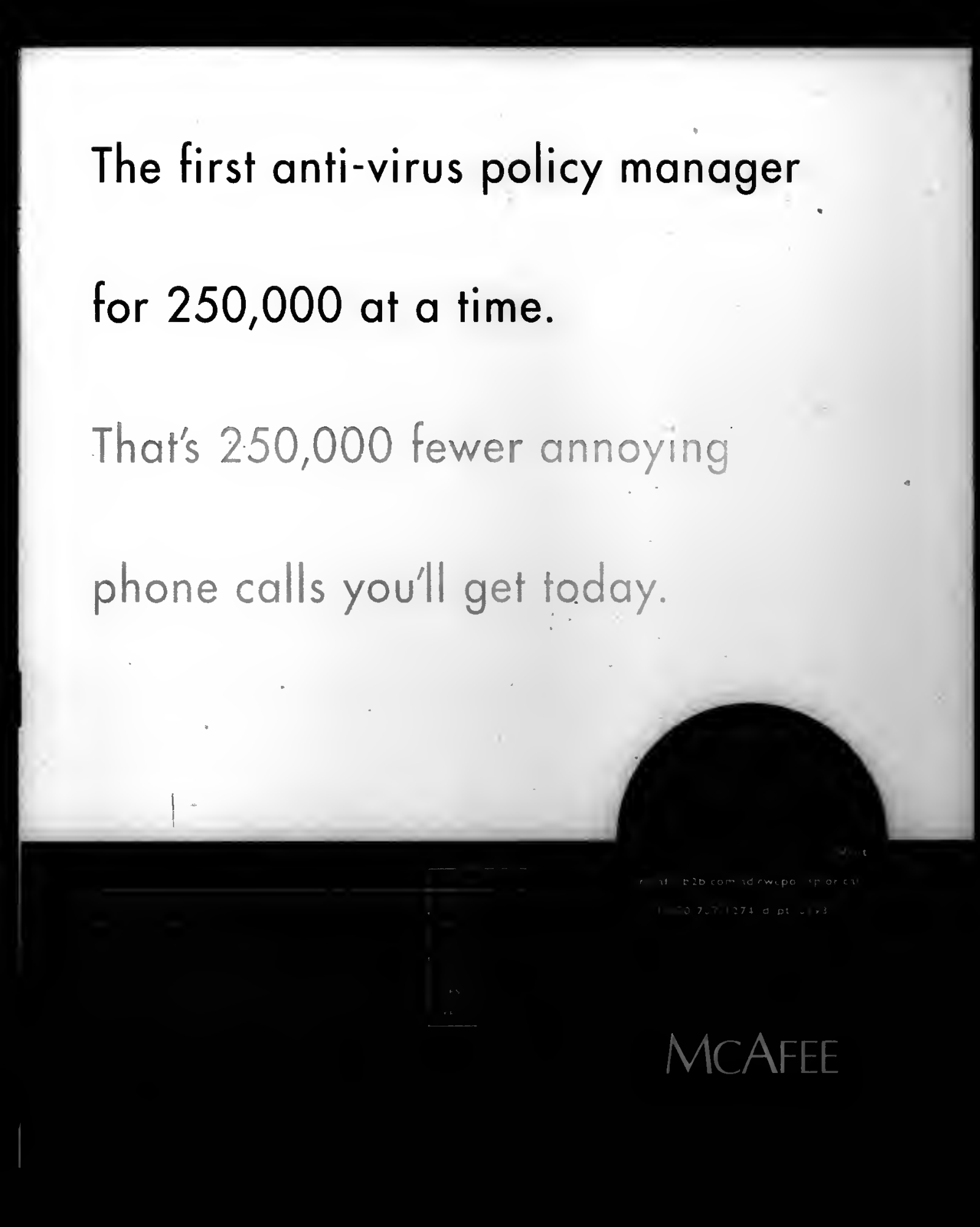
6 Loose lips sink ships. Clark says people often talk in public places about things they shouldn't. "They will say at a bar, 'I changed my password and added the number 2,' and someone sitting two stools down hears this. Some things you just shouldn't talk about outside the office environment," says Clark.

7 Laptops have legs. Everyone knows how common it is for laptops to be stolen in public places, but Jay Ehrenreich, senior manager at PricewaterhouseCoopers in New York, says it's surprisingly common for a person to leave his laptop in his office, unsecured and unattended, and in full view of passersby. "These things walk," he warns. Users should place their laptop securely out of sight, such as in a locked desk drawer.

8 Poorly enforced security policies. The best-designed security plans are useless if IT fails to rigorously enforce them. "If these things aren't enforced by the system, then the policy isn't useful," notes Chris Smith, vice president of computer information systems at EasCorp, a Woburn, Mass.-based provider of wholesale financial services to the credit union industry.

9 Failing to consider the staff. "Your greatest [security] threat is from in-house," says Hill. Disgruntled employees and others can cause enormous problems if they're not properly monitored. IT departments should do a good job monitoring incidents and have the forensics capabilities to be able to follow problems to their sources.

10 Being slow to update security information. "One thing we see all the time is that service packs are not kept up-to-date," says Ehrenreich. This creates a window of opportunity for hackers.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That's 250,000 fewer annoying
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McAfee

Playing By Europe's Ru

With a European computer security treaty ready for ratification, IT managers in the U.S. had better concern themselves with liability and protection issues.
By Deborah Radcliff

THE PRIMARY OBJECTIVE [illegible] international cybercrime [illegible] DOJ's Martha Stansell-Gamm

KATHERINE LAMBERT

INFORMATION TECHNOLOGY managers fear that the Council of Europe's final draft of a controversial cybercrime treaty, which was approved by the council's European Committee on Crime Problems last month, will affect their businesses from both a liability and a security perspective.

But before getting all worked up over liability issues, American IT leaders need to remember that European nation-states are behind the U.S. in terms of cyberlegislation and law enforcement, explains Martha Stansell-Gamm, chief of the Computer Crime and Intellectual Property Section at the U.S. Department of Justice (DOJ). Stansell-Gamm was the DOJ's representative in the drafting of the treaty. The U.S. participated because it has observer status within the Council of Europe.

"We already have many treaties — bilateral and multilateral — on law enforcement matters like extradition, mu-

tual assistance, money laundering and corruption," she says. "An awful lot of what's going into this treaty is not new; this just combines technology and criminal law and international law."

Just as in other international law enforcement pacts, the primary objective of the treaty is to break the bottlenecks in international cyberinvestigations, says Stansell-Gamm.

For example, if the Philippines had the laws in place to become a signatory to the treaty, the creators of the "I Love You" virus may have been brought to trial there. But at the time, the Philippines had no laws addressing computer crime, and the U.S. had no treaty agreement with Philippine authorities to continue the investigatinn, so the virus writers were never charged.

"We want to avoid the situation where U.S. networks are being pounded from overseas and we can't do anything about it," Stansell-Gamm says.

Until now, domestic law enforcement agencies have been in a quandary over international cyberinvestigations. They've tried everything from training foreign authorities to luring a cracker from Russia to the U.S. and then tracing his cybertracks hack to his server lair and downloading the contents of that server.

Yet despite the hope that the treaty will improve the ability of U.S. corporations to press criminal charges against foreign attackers, the American business community is concerned about a number of substantive laws that treaty participants must enact if they want to be signatories. In particular, U.S. firms are concerned about the following potential problems:

- Increased corporate liability.
- Granting too many investigative powers, to the detriment of corporate privacy.
- Making the distribution and sale of hacking tools illegal.

Among these concerns, the one voiced loudest by corporate managers is the potential impact for businesses that use hacking tools to test the stealth of their networks. "Ping could be a hacking tool. TraceRoute [a tool used for IP tracking] could be a hacking tool. How do you define a hacking tool?" asks Frank Clark, network operations manager at Thaumaturgix Inc., a hosting and IT services firm in New York. "The people making these laws don't know what a hacking tool is. And to outlaw the wrong tools could make it impossible for me to do my job testing my network."

Mark Rasch, vice president of cyberlaw at Predictive Systems Inc., a tech consultancy in New York, says such restrictions could also violate First Amendment rights to free speech.

This particular concern isn't being driven by the language in the treaty document itself, but in a preamble press release published when the draft first went online in April 2000. The release stated, "The draft provides for the co-ordinated criminalisation of computer hacking and hacking devices," without going into further detail.

"The real problem we have is the document doesn't address intent," says Lisa Norton, an attorney for Internet Security Systems Inc. (ISS) in Atlanta. Norton lobbied against the outlawing of hacking tools because such laws could put tools vendors such as ISS out of business.

Fortunately, both the April and December 2000 treaty drafts clearly state that hacking tools are illegal only if used "for the purpose of committing offences established in Articles 2-5" (see list at right). The December treaty draft includes additional provisions allowing legitimate use of hacking tools.

Other IT professionals who have carefully read the document say they feel that the treaty clearly addresses the issue of intent and the legitimate use of hacking tools. "I spent 15 years as an attorney, and I do know ambiguous language. This [treaty draft] is something we're comfortable with," says Mitch Demblin, program director for the cyberattack team at Exodus Communications Inc. in Santa Clara, Calif. ▶

IN DEPTH RESEARCH

ONLINE

- See more about the treaty, including the actual language, discussions from European signatories and private-sector discussions.
- See privacy advocates' continuation of U.S. companies' preparation for the treaty and the impact the treaty will have on international business. Cybercrime links are at: www.computerworld.com/security/links

COMPUTERWORLD ONLINE COMMUNITIES

Get advice from your peers, offer your own tips or post your opinion at: www.computerworld.com/security

The European Cybercrime Treaty

The 29-page **Draft Convention on Cyber-crime (http://conventions.coe.int/treaty/EN/cadreprojets.htm)** *is an international law enforcement treaty draft spearheaded by the Council of Europe that attempts to define cybercrime and attach substantive criminal penalties. As a potential signatory to the treaty, the U.S. has participated in its drafting through the Commerce and Justice departments. U.S. corporate interests have been represented in treaty development by meeting with the U.S. contingent over the past year.*

FACTS ABOUT THE TREATY

- As of May, there were **25 versions** of the draft.
- European legislative work in the area of cybercrime actually began back in the **mid-'80s**.
- The treaty should be **ready to ratify** by the end of this year.
- The U.S., along with eight other nations, including Japan, Canada and South Africa, has been invited to be a **signatory to the treaty** once it's ratified.
- To be a signatory, a country must first apply its own **"substantive"** (i.e., criminal) laws.
- **Articles would regulate:**
  1. Illegal access
  2. Illegal interception of electronic communications
  3. Data interference
  4. System interference
  5. Misuse of devices
  6. Computer-related forgery
  7. Computer-related fraud
  8. Child pornography
  9. Copyright
  10. Aiding or abetting
  11. Corporate liability
- **The rest of the document** covers procedural, investigative and mutual assistance, jurisdiction, extradition and information-sharing issues.
- This is the first time the **Council of Europe** has opened legislative development to public scrutiny by posting it on the Web.
- **On June 22,** the cybercrime treaty was adopted by the standing committee that drafted it. It's now being conveyed to the 43 member nation-states of the Council of Europe, which will decide on ratification by the end of the year.

ARTICLE 6 – MISUSE OF DEVICES

1. Each Party shall adopt such legislative and other measures as may be necessary to establish as criminal offences under its domestic law, when committed intentionally and without right,
   - **a.** the production, sale, procurement for use, import, distribution or otherwise making available of:
     - **1.** a device, including a computer program, designed or adapted primarily for the purpose of committing any of the offences established in accordance with Article 2 - 5;
     - **2.** a computer password, access code, or similar data by which the whole or any part of a computer system is capable of being accessed with intent (13) that it be used for the purpose of committing any of the offences established in Articles 2-5; and
   - **b.** the possession of an item referred to in paragraphs (a)(1) or (2) along with intent that it be used for the purpose of committing any of the offences established in Articles 2-5. A Party may require by law that a number of such items be possessed before criminal liability attaches.
2. This article shall not be interpreted as imposing criminal liability where the production, sale, procurement for use, import, distribution or otherwise making available or possession referred to in paragraph 1 of this Article is not for the purpose of committing an offence established in accordance with articles 2 through 5 of this Convention, such as for the authorised testing or protection of a computer system.
3. Each Party may reserve the right not to apply paragraph 1 of this Article, provided that the reservation does not concern the sale, distribution or otherwise making available of the items referred to in paragraph 1 (a) (2).

Intrusion detection systems are getting smarter, but sorting real attacks from false alarms takes planning.

By Steve Ulfelder

ANASTASIA VASILAKIS

False

WHEN ECAMPUS.COM first installed an intrusion-detection system (IDS), the alerts were unnerving. "For the first few attacks, we came unglued. We said, 'We'd better sit in front of those monitors all day,' " says Brent Tuttle, chief technology officer at the Lexington, Ky.-based college supplies retailer and online community. That's not an uncommon reaction, users say, because the sheer number of alerts can be overwhelming.

Although an IDS should be part of any enterprise's security toolbox, users and analysts stress that the technology is no panacea. Because such systems are reactive by nature, they're always one step behind attackers. False positives can cause unnecessary scrambling, while the signature updates that make an IDS effective against new attacks areo't frequent enough, users say. And as Ecampus.com discovered, implementing an IDS suddenly increases the awareness of access attempts — although many may be harmless.

Managers should create notification and escalation policies that answer the question: Now that we've got all this information, what are we going to do with it? In an effort to ease this burden, vendors are developing smarter, more active systems that ignore harmless threats and have decisioo-support mechanisms that let users respond to the serious ones.

It's critical to define an instant-response policy before firing up the IDS, users say. These policies lay out how to respond to different types of attacks, including the people to notify and in what order.

Tuttle says Ecampus.com had two top priorities in mind wben it shopped for an IDS. It needed to be effective against students, who have plenty of free time, and it needed to be automated so the IT staff could focus oo other tasks. The firm settled on Intruder Alert from Symantec Corp. in Cupertino, Calif.

After a few months of overreacting to false positives, Tuttle called in Symantec consultants, who educated the staff on which attacks were significant and those that weren't, until he had "a comfort level that we were locked down as tight as we can be," Tuttle says.

Ecampus.com also "developed an escalation policy so that if there's a [denial-of-service attack] or a server down, the first calls go to the responsible engineers, then I'm notified," Tuttle says.

An IDS can free up staff time and eliminate some drudgery, but sometimes there's no substitute for the human eye. That lesson was recently brought home to John Steensen, vice president and chief technical

officer at Intira Corp., a Pleasanton, Calif.-based infrastructure outsourcer that counts among its customers the online community Military.com.

In April, when pro-Chinese attacks beset U.S. businesses, "Military.com's load went from 4% to 74% [of capacity]," Steensen says. The traffic increase didn't trigger any IDS alarms, but an Intira network engineer "saw it just didn't look right" and notified Military.com, he says. For businesses where security is critical, hiring and retaining skilled staff makes sense. "We know attacks are going to happen no matter what the technology," Steensen says. "You still need a good human being behind [the IDS]."

Enterprise IT departments are increasingly using hybrid systems — a combination of network- and host-based tools. A network-based IDS detects attacks upfront, according to Michael Rasmussen, a senior analyst at Giga Information Group Inc. in Cambridge, Mass. "It's especially good at scans around the perimeter," he says. A host-based system detects changes to an individual server's hard drive and thus serves as a backup to a network-based IDS. They also catch internal abuse, which is statistically more likely than an external attack.

Intira uses Symantec's Intruder Alert as its host-based IDS on each server, with the network-based Cisco Secure IDS from Cisco Systems Inc. "We deploy inside and outside the firewall so we can see all port scans and attacks," Steensen says.

Because Intira's staff interprets attacks, Steensen says, the company makes little use of automatic shunning, a popular IDS feature that can block addresses associated with malicious activity. On the other hand, "if you're running an unattended operation, you'd want to configure [your IDS] to be more automatic," and shunning makes more sense, he says. But while organizations that shun traffic require fewer staffers to monitor the IDS, they may inadvertently turn away legitimate users.

In both staffing and technology, using an IDS is a balancing act. On the technology side, new IDS users often "turn the volume way up, then catch too many false [positives] — then turn the squelch down to zero" — and attacks slip through, says Peter Lindstrom, an analyst at Framingham, Mass.-based Hurwitz Group Inc.

Analysts and vendors say future systems will include better user interfaces and features to help IT managers sort the false alarms from the true threats. Vendors are already beginning to address another issue: more automated and timely signature updates. Cisco recently started pushing signature updates out to users of its Secure IDS product.

Atlanta-based Internet Security Systems Inc.'s new release of RealSecure bundles traditional network- and host-based IDS tools with the blocking of active content (such as executable e-mail attachments) and malicious-code-scanning software with a single information-user interface.

Analysts say that vendors must also improve their IDS performance. Such systems are an enterprise's first line of defense and make tempting targets for would-be intruders. Rasmussen says IDS-specific attacks have gained in popularity during the past year. One method attackers use is to swarm the system with false positives in the hope that exasperated security personnel will shut off the IDS.

Rasmussen adds that in denial-of-service attacks, most detection systems "fail-open" — that is, they stop functioning but don't shut down the rest of the network, leaving the network vulnerable.

Ultimately, IT managers should view an IDS as another security tool whose value correlates to the wisdom and resources with which it is used. As Jeff Uslan, director of information protection at Los Angeles-based Sony Pictures Entertainment says, the key to IDS is "not what it'll detect, but how you'll use it." ▶

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@charter.net.

ONLINE

An Ounce Of Intrusion Prevention

Host-based IDSs tend to rely on signatures – the code-string fingerprints of a known attack – to trigger alerts. The trouble is, hackers create new attacks every day. If they attack an organization using a technique that's not in the database of the IDS, the company is vulnerable. In response, vendors are offering products that look for suspicious activity and proactively block those potential attacks. Here's a sampling of offerings:

■ **Entercept Security Technologies**
San Jose
(www.entercept.com)
Entercept Security Technologies' Entercept 2.0 consists of a software agent that resides near the host's operating system kernel. It monitors system calls before they reach the kernel, uses a rules engine to identify potentially suspicious activity and then either halts the activity or notifies the administrator.

■ **Recourse Technologies Inc.**
Redwood City, Calif.
(www.recourse.com)
Recourse Technologies Inc. offers ManHunt, which performs the duties of a traditional IDS and uses an approach similar to Entercept's to identify new attacks.

The drawback: Some legitimate activities in an organization may trip these systems. The staff will then need to define exceptions. Otherwise, the organization could wind up suffering too many false positives.

"These things are good for big hosting facilities, telcos and maybe financial [services firms]," says Hurwitz Group analyst Peter Lindstrom, because security is so vital to such organizations and attacks are so common.

– Steve Ulfelder

Alarm?

Deadly Pursuit

Computers are playing a major role in an increasing number of real-world crimes, fueling a need for investigators with strong technology skills. By Zachary Tobias

SOUTH DAKOTA,1999. A woman is found drowned io her bathtub. An autopsy shows a high level of the sleeping pill Temazepam in her bloodstream.

It looks like a suicide — that is, until investigators take a close look at her husband's computer. Turns out he's been researching painless killing methods on the Internet and taking notes on sleeping pills and household cleaners. Armed with that evidence, prosecutors are eventually able to put him behind bars.

Law enforcement agencies across the country are realizing that computer-related evidence is valuable io catching all kinds of criminals, not just hackers.

That's why they're scrambling to hire and train officers skilled in computer forensics, the discipline of collecting electronic evidence.

In the corporate world, demand for these IT sleuths is increasing, as well. They usually work as consultants. For example, a company might call a forensics examiner in to investigate how a hacker got into an IT system or to find out which employee walked off with confidential files.

But whether be works for law enforcement or the business world, a computer forensics examiner must be able to thoroughly scour an IT system for evidence while following a strict protocol, so that the evidence can be used in a court of law.

We talked to one forensics examiner with exactly that set of skills — the kind of employee who's sure to be in high demand in both worlds for years to come.

The investigator: Patrick Lim, computer forensics examiner at the Regional Computer Forensics Laboratory (RCFL) in San Diego

Previous experience: Lim has been a special agent at the Washingtoo-based U.S. Naval Criminal Investigative Service (NCIS) for the past 17 years. But it was only about four years ago, wheo be was transferred to the NCIS's Computer Investigations and Operations unit, that his career took a turn into the world of IT.

In January of last year, Lim helped launcb the RCFL, a task force that pools the computer forensics resources of several law enforcement agencies in the San Diego area.

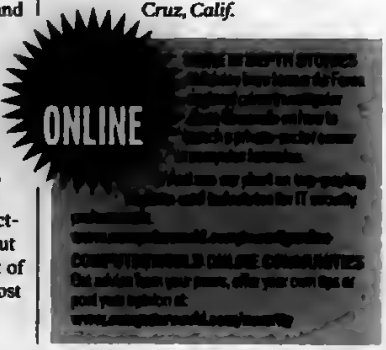
Lim says all examiners at the RCFL must have strong investigative and problem-solving skills, as well as a solid foundatioo in operating systems and computer imaging.

Responsibilities: Lim spends much of his time working oo cases that directly involve computers, like child pornography on the Web or Internet fraud. Increasingly, though, all kinds of cases involve computers, he says. "In the past, people thought that computer forensics applied strictly to computer crimes," says Lim. "But since computers are now such a part of everyday life, we're finding that almost every crime at some point touches a computer."

For example, at the site of a bank robbery, investigators recovered demand notes that were written using a notepad application. Examining one suspect's computer, Lim found that the thief had beeo careful to delete the files. Looking deep into the hard drive, however, Lim was able to find copies of the notes that were automatically made by the printer.

No matter what the nature of the case, it's essential to leave all of the evidence exactly as it was found — "just like a crime scene," says Lim. For that reason, forensics examiners never work directly on suspects' computers. Instead, they use computer imaging to make a complete bitstream copy of an entire machine, and they then comb the copy for whatever incriminating evidence they can find. ●

Tobias is a freelance writer in Santo Cruz, Calif.



Profile

NAME: Patrick Lim

TITLE: Computer forensics examiner

ORGANIZATION: Regional Computer Forensics Laboratory, San Diego

NATURE OF HIS WORK: Collects and analyzes computer-related evidence in criminal investigations

SKILLS NEEDED: Lim says a combination of investigative and IT skills is key.

SALARY POTENTIAL: In law enforcement, $50,000 to $70,000; in private companies and consulting firms, computer forensic examiners can make up to twice that.

CAREER PATH: Computer forensics skills could lead to jobs in law enforcement agencies or in the private sector, where demand for forensics experts is growing.

ADVICE: Consider getting a certification, like that offered by the FBI's Computer Analysis and Response Team program.

WHEN YOUR WEB BUSINESS IS UNDER ATTACK, WILL YOU HAVE THE STRONGEST SOLUTION?

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RSA

Manager Offers Primer On Computer Forensics

Vince's company is loath to prosecute attackers, but gathering computer evidence is still part of the job

BY VINCE TUESDAY

MENTION THE WORD *forensics*, and I imagine rubber gloves and Dana Scully conducting autopsies in *The X-Files*. Thankfully, when applied to computers in general, forensics is less smelly and less likely to involve extraterrestrial life.

An increasing number of criminal investigations these days include evidence extracted from computers. However, because of the impermanence of digital data and the ease with which evidence can be manufactured, evidence has to be obtained with great care.

We have many thousands of computers in our company that are potential targets for criminal activity. Hackers may try to gain access to confidential data over the Internet. Insiders may try to modify expense claims after they've been approved.

SECURITY MANAGER'S JOURNAL

Most of our efforts are spent trying to stop this from succeeding, but sometimes attacks slip past our defenses. Also, computers can be used as tools of crime, as when staffers download pornography from the Web or send our customer lists to their new employer by e-mail just before they quit.

Gathering the Evidence

When our computers become the targets of a crime, we must gain access to the systems to verify that a crime has been committed. Once we know it isn't a false alarm, we collect digital evidence to determine the scope of the crime. An accurate record of what has happened allows us to recover, repair and learn from the past. And if we collect evidence carefully, we can use it in court. If we handle the data without following the correct procedures, however, there's nothing we can ever do to produce admissible evidence.

Practically speaking, we're unlikely to present such evidence in court. Like most financial services organizations, we prefer not to drag our security problems through the justice system. But when we start investigating, we can't be sure that we won't uncover something that requires prosecution or that we could use to defend ourselves from a liability suit.

Courts require the highest standards of computer evidence. Increasingly, the tribunals used to resolve disputes between staff and company, such as wrongful dismissal cases, require the same level of evidence.

When a member of our staff uses one of our computers to commit a crime, digital forensics are the only way we can prove wrongdoing.

Our main forensic tool is EnCase software from Guidance Software Inc. in Pasadena, Calif. It allows us to boot up off of a floppy disk and copy a hard disk byte by byte. The methodology it uses is admissible in court. Guidance Software also offers several tools for searching and extracting evidence.

In today's world of very large local disk drives, network storage, personal digital assistants and mobile devices, trying to find data can seem like hunting for a needle in a haystack. User behavior helps narrow this down. Most users seem to feel that their local drives are safer than the network. They seem to believe that we have enough time and resources to check only the network drives for questionable material.

This belief makes our investigations simpler. A simple local disk search usually uncovers all the evidence we need. And since local drives are less busy than network drives, deleted files are less likely to have been overwritten.

Cheap and available encryption may be a brief hindrance for the feds, but for us, it draws an impenetrable veil across the data, unless our users have chosen easy-to-crack WinZip compression or Microsoft Office encryption. Luckily, our policy prohibits staff from using encryption without providing a key, so disciplinary charges can be brought without us having to break the code.

I'll bet a good many readers are jumping up and down about free speech and the right to privacy. I assure you that our staffers can afford home systems with Internet access, and that's the place for them to exercise those rights. We explain clearly to all staff that they should have no expectation of privacy when using work systems.

Wrongfully Accused

While forensics evidence can implicate users, it can also clear them from suspicion. Recently, a disgruntled worker was suspected of hacking our internal systems. Management called us in to provide the digital evidence to sack him with no danger of a wrongful dismissal suit.

We carried out a 3 a.m. black-bag job on his machine, carefully taking digital photos of his desk and machine so that we could restore everything without alerting suspicion. We quickly took his machine to our lab. Within a few hours, we had dismantled the machine, taking care not to disturb the dust on the outside. We added a second disk to hold the evidence and booted the machine from the EnCase floppy disk. We carefully made an exact copy of the disk, returned the machine and retired to the lab to examine the results.

When we return from such a mission, we always check all the tools we used, like surgeons in an operation, to make sure we haven't left anything in the patient. This time, we couldn't find the boot floppy. A swift return to the alleged crime scene recovered the offending disk. How foolish would we have looked when the suspect booted his machine the next morning, only to be greeted by a "Welcome to EnCase forensic solutions" screen? Fortunately, attention to detail averted that disaster.

Sometimes, even we jackbooted privacy invaders can actually help someone clear his name. With careful analysis, we were able to show that this particular user's machine and the use of software on it were legitimate. We went through it so closely that we could see the pornographic images downloaded three users back. Our forensic evidence was enough to overturn the circumstantial evidence against him.

Some readers may disagree with our methods, but the results speak for themselves. I welcome your comments in the Security Manager's Journal forum.

GLOSSARY

Computer forensics: The investigation of computer crime, including the collection, analysis and presentation in court of electronic evidence.

Black-bag job: Slang for the surreptitious entry into an office to obtain files or materials.

LINKS

www.usdoj.gov/criminal/cybercrime/search_docs/toc.htm: This Web page, "Federal Guidelines for Searching and Seizing Computers," includes the U.S. government's policy for collecting computer evidence. Designed for federal agencies, it's also a useful resource to learn the correct procedures to follow when gathering evidence.

www.guidancesoftware.com/html/index.html: Guidance Software's Web site includes information on its EnCase digital forensic software, hardware and training services.

www.sans.org/infosecFAQ/incident/forensics.htm: This paper by Dorothy A. Lunn, at the Web site of Bethesda, Md.-based SANS Institute, offers an excellent introduction to computer forensics, including references to an array of products, training resources and additional reading.

MOREONLINE For more on the Security Manager's Journal, including past journals, visit www.computerworld.com/securitymanager

■ This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com or go to the Security Manager's Journal forum.

Are you sure you are protecting the heart of your business?

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*Source: Giga Information Group, *Market Overview: Managed Security Services*, April 23, 2001.

PKI networks promise to make online transactions safer. Trouble is, they're hard to build, so few bother. But that may be changing.

By Jaikumar Vijayan

PUBLIC-KEY INFRASTRUCTURES (PKI) that create the ability to maintain privacy, authenticate users, protect the integrity of data and execute transactions without the risk of repudiation have long held the promise that they could make online transactions safer.

But corporations need to have a clear understanding of what they want to do with the technology and be prepared to face up to thorny integration, interoperability and legal issues if they are to see any of that promise fulfilled, users and analysts say.

"PKI in and of itself means nothing," says Steve Ellis, executive vice president of San Francisco-based Wells Fargo & Co.'s Wholesale Internet Solutions group.

For PKI to be relevant, "you have to first think through what identity management means for the way your business operates," says Ellis. "You need to know what your critical [information] assets are and figure out when to implement a digital authentication strategy as opposed to [another means of authentication]."

A PKI infrastructure consists of dedicated hardware, software, data transport mechanisms, smart cards and applications, along with governing policies and protocols, that companies can use to establish a high level of trust when carrying out online transactions.

The following components lie at the core of PKI-enabled services:

- A certificate authority (CA) that verifies an applicant's identity and issues a digital certificate, or electronic identification, containing a public key to encrypt and decrypt messages and digital signatures.
- A registration authority that checks the credentials of individuals applying for digital certificates.
- Data repositories for storing the certificates.

If deployed successfully, such infrastructures can provide the basis for securely conducting a wide range of online activities using electronic IDs, electronic signatures and encryption.

Wells Fargo, for instance, has begun testing a new PKI-enabled business-to-business service that lets businesses negotiate, purchase and pay for goods online in real time, in a nonrepudiable manner using digital IDs. The company acts as a CA and issues digital certificates that customers use as electronic IDs while conducting business-to-business transactions.

But formidable challenges stand in the way, users and analysts say.

For one thing PKIs are costly and complex to implement. They provide a mechanism for secure online transactions, but a lot of their success depends on human processes.

For example, just because someone has an electronic ID doesn't mean that person is who he claims to be. A lot depends on the rigor applied by the CA in identifying and authenticating users and in controlling their access to services based on their user profiles.

The U.S. Postal Service, for instance, offers a PKI-enabled service called NetPost.Certified for secure government-to-government and government-to-consumer transactions.

NetPost.Certified uses the Postal Service's 38,000 branch offices as stations at which consumers can present the identification that some federal agencies require before issuing individual digital certificates.

Without this kind of rigor, the whole concept of electronic IDs can quickly become meaningless.

The technology also raises many legal questions, says Eric Kossen, global head of project management at a PKI-enabled service from ABN Amro Holding NV, the Amsterdam-based financial services giant.

Like Wells Fargo, ABN Amro acts as a CA that issues electronic IDs for a new business-to-business purchase and payment service aimed at large businesses.

"If you operate as a certificate authority, you take on a certain level of responsibility for that role," Kossen explains.

A lot of the questions surrounding

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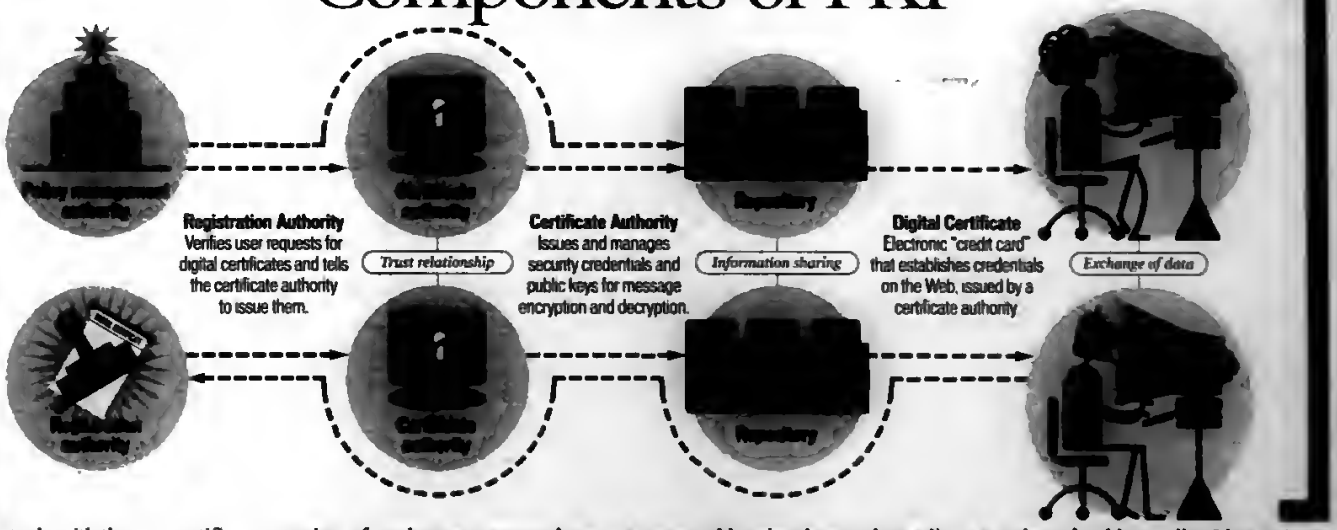
Components of PKI



PKI have to do with the way certificates are issued, verified, revoked and checked. There are also uncertainties about the level of trust assigned to digital IDs issued by other CAs. And there are eveo questions about such fundamental issues as the legal validity of electronic signatures and the manner in which they are stored, says Kossen.

Despite major vendors' claims that their products are mature, many PKI technologies are still evolving. Many vendors claim to offer the entire range of technologies needed to build a PKI service. Ofteo though, it's best to choose best-of-breed products from a variety of vendors, say users and analysts. But that raises issues of interoperability and standards. Putting up a PKI framework, therefore, means dealing with a hodgepodge of technologies that seldom work with one another and are constantly evolving, say users.

Few applications are enabled out-of-the-box to take advantage of PKI services. This means users must integrate them into PKI networks. A growing number of vendors offer tool kits that snap into applications and make them PKI-ready. But these tool kits don't easily interoperate.

Resolving interoperability issues means addressing them at the application level, at the component level and between multivendor PKI domains, according to a recent white paper published by the PKI Forum, a Wakefield, Mass.-based consortium of vendors established to address the issue.

Application-level interoperability deals with PKI services, such as encryption, authentication and nonrepudiation, between peer applications, such as two e-mail clieots, according to the PKI Forum.

Component-level interoperability relates to the manner in which devices that provide and consume PKI services, such as a CA, interact with other similar devices.

Interdomain interoperability deals with how to link multiple PKI domains that are based on technologies from different vendors.

Interoperability is also important io the long term because it lowers the risk of customers being tied to a single vendor or technology, while offering them a greater choice among vendors, says Laura Rime, a director at New York-based Identrus LLC.

Identrus is a for-profit company established by eight leading global banks. Since 1997, it's beeo building a PKI-based global system that assures businesses of the identity of their trading partners.

Financial institutions that are part of the Identrus network issue digital certificates to conduct online transactions with certified trading partners.

Identrus has a prescribed interoperability test process and baseline standards that PKI vendors have to meet in order to be able to sell to Identrus' member institutions. The number of products and technologies that have qualified now exceeds 25 — more than double the number at this time last year, Rime says.

Because acceptance of PKI has been limited so far, there hasn't been a sense of urgency among vendors to advance interoperability, says Dan Hellman, a manager at Cylink Corp. in Santa Clara, Calif.

Despite the promise of PKI, most corporations still aren't quite sure what to do with it, says Wells Fargo's Ellis. One of the reasons is that there are otber readily available authentication alternatives, ranging from basic passwords to biometric technologies, that companies can use, he says.

But "if PKI interoperability is what you are waiting for, then wait no more," says Peter Lindstrom, an analyst at Hurwitz Group Inc. in Framingham, Mass. "Start your deployment now, because by the time you get to a point where you want to connect external CAs, the issues will have resolved themselves."

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Too Late For Digital Certificates?

Initial efforts to provide online authentication have been costly and complex. By Michael Meehan

LAST YEAR, the federal government couldn't move fast enough to pass a digital signatures law, which it finally did in October.

But almost a year later, it appears that all of the bullabaloo has turned out to be little more than smoke, as many companies have managed to make do without state-of-the-art authentication and security technologies.

Prior to the legislation, it was believed that the electronic identifiers were needed to support the online business-to-business explosion that appeared to be just around the corner.

At the same time, many companies were being told they had to put a public-key infrastructure (PKI) cryptography and authentication system in place to be sure they weren't doing business with cyberpirates.

However, business-to-business e-commerce didn't boom as quickly or as broadly as anticipated. Meanwhile, those companies that are dabbling in the e-commerce arena have managed to do so without digital certificates.

"What we learned is you don't have to have these things in place to start electronic commerce," said Jan Sundgren, an analyst at Giga Information Group Inc. in Chicago.

However, a second-generation PKI standard that embeds authentication processes into e-commerce applications and smart cards that are enabled for digital certificates have evolved during the past year, pushing online authentication closer to viability.

Not So Fast

The main hurdles to adoption are cost and difficulty of implementation.

For instance, a November survey of 1,026 executives at U.S. companies with revenues of more than $1 billion revealed that only 16% of the firms had completed work on digital certificate infrastructures, according to Frank Prince, an analyst at Cambridge, Mass.-based Forrester Research Inc., which conducted the survey.

In 1999, half the companies in Forrester's annual e-commerce poll said they would have working PKI systems in place by the end of this year. But when Forrester conducted the poll again last year, only one-third of the respondents said they believed they could achieve that goal in the next two years.

"The expectations fell off after they had the experience with the implementation and expense of digital certificate technology," says Prince. "What they discovered is that this isn't as easy as they thought."

One of the chief hurdles to the adoption of digital certificates is that most PKI software has been developed along proprietary lines. Authentication services that might work well to support internal expense reports or personnel evaluations don't necessarily translate in a business-to-business format.

PKI allows companies to send encrypted messages through a public registry, which is then decrypted by a private key that the receiver bolds.

As it turns out, many companies that are capable of issuing PKI certificates rarely use them.

Jurgen Leijdekker, U.S. managing director at Denver-based eCredible Ltd., a transaction risk-management subsidiary of Amsterdam-based credit insurance company NCM NV, says it's rare for companies to ask for digital certificates when they do business online.

"We can issue them, but many companies feel a password in their hands is somehow more secure," he says.

Even though risk management often involves the most sensitive financial aspects of online trading, few companies are able to perform the decryptions. As a result, executives at eCredible view digital certificates as a perk service, not something central to its business, Leijdekker says.

A proposed standard called XML Key Management Specification (XKMS) may help solve this dilemma. Submitted in April to the World Wide Web Consortium standards body, XKMS is based on Web services protocols such as Web Services Description Language and Simple Object Access Protocol. The standard was designed with the goal of providing interoperability between PKI systems.

XKMS incorporates authentication services inside of e-commerce applications. Currently, desktop and e-commerce applications must be enabled to handle digital keys for authentication.

As a result, no longer would both the buyer and seller need fully implemented PKI infrastructures to exchange certificates or signatures.

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Giving Users Back Their

The P3P standard may not make Web surfing more private, but it might give consumers a way to enforce the promises that Web sites make.

By Deborah Radcliff

WITH MICROSOFT SET to release its first browser-based consumer privacy controls later this month, the Platform for Privacy Preferences Project (P3P) standard is about to step into the limelight.

Already, 63 companies have joined the P3P bandwagon. They've rewritten and tagged their privacy statements in XML to make those policies readable by Web surfers' machines. And many more e-merchants are well into the process of making their online privacy statements P3P-compliant.

The promise of P3P is that it will give users control over how their data is gathered and used. By supporting the standard, e-merchants hope to draw consumers back to the Web, and maybe even gain some loyalty in the process.

But critics are wary of this silver-bullet approach to consumers' privacy, charging that tools that only expose privacy policies don't hold e-businesses accountable for promises they make. And early iterations of Microsoft Corp.'s browser tool and the other emerging P3P plug-in by YouPowered Inc. in New York aren't really reading full privacy policies when

deciding whether to allow a read from or write to a cookie, making it harder to automate personal preferences on privacy.

"P3P will not improve the curreot level of privacy protection," says Andy Shen, policy analyst at EPIC.org, a privacy advocacy group in Washington. "What we need is standards — something to hold [vendors] accountable. Because without those, there's no enforcement."

But these early iterations of P3P are better than doing nothing, say proponents. And as implementations expand to offer more granular choices for users, P3P could be the biggest thing to hit the browser since Secure Sockets Layer encryption, say early adopters.

The Language

By tagging English-language privacy statements in XML, Web businesses make their policies readable by any P3P client. As P3P matures, users should eventually have a vast array of settings they can use to tailor their Web experiences to their preferences.

"The benefit of P3P is once you establish a set of general preferences, the review of the site's policy happens automatically," says Jules Polonetsky, chief privacy officer at e-mail marketing company DoubleClick Inc. in New York. "This is the beginning of allowing users to say, 'I'll give you this, but I woo't give you that. Tell me what [the Web site is] asking for, and my browser will interact."

The back-end work of tagging privacy statements in XML is straightforward, says Lorrie Cranor, chair of the P3P specifications working group spearheaded by the World Wide Web Consortium. Cranor, also a principal technical staff member at AT&T Labs in Lorham Park, N.J., has completed tagging AT&T Corp.'s English language privacy policy for P3P compliance.

The difficult part is re-creating the privacy statements in the fine detail required to make them P3P-compliant, according to both Cranor and Polonetsky.

"Your privacy statement and your P3P statement are likely to be different documents," says Polonetsky, who's in the midst of rewriting DoubleClick's privacy statements for P3P. "Most privacy policies don't go into as much detail as P3P does — or cover the gamut of technology that has any information relationship, like navigational data, log files, HTTP refers."

To make this easier, Cranor developed a template-based privacy policy generator to cover the mundane detail called for in P3P-compliant policy statements. AT&T's new policy, which went live July 1 at *www.ott.com/privacy/*, addresses not only what data is collected, but also how it's collected and what's done with it. Some examples include the following:

- **Data collection:** AT&T's policy specifies what the data is collected for: Billing services, change services, problem resolution and product information. "This means that AT&T may use your customer-identifiable information, in conjunction with information available from other sources, to market new services to you that we think will be of interest to you, but we will not disclose your customer-identifiable information to third parties who want to market products to you," the statement says.
- **Cookies:** The policy states that "AT&T servers automatically gather information about which sites customers visit on the Internet and which pages are visited within an AT&T Web site. The company does not use that information, except in the aggregate."
- **Disclosure:** AT&T's policy states it will not sell, trade or disclose this informatioo — including customer names and addresses — to third parties without consent of customers. It also says AT&T will ensure that contractors also protect the customer-identifiable information.

Polonetsky says DoubleClick's privacy policies are clear, but the company's use of cookies is complex because it monitors Web surfing habits to determine which ads to send to consumers' browsers. So his efforts have mostly centered on making sure cookie use is portrayed accurately, whicb has taken extensive conferencing with DoubleClick's legal, privacy, marketing and technical people, he says.

Missing from P3P work is language for data security, something even the Federal Trade Commission (FTC) brought up to the P3P working group when it was formalized in 1997. But when the working group looked into allowing consumers to set their data security preferences, it decided it was impossible to objectively define which sites are secure, says Cranor.

That's because anyone with a firewall can say they protect consumers' data, even if that firewall is junk, she says. P3P does include a hook for security vocabulary, but it woo't be useful until some best security practices, sucb as the published security standard ISO 17799 or Visa Ioternational Inc.'s merchant security policies, are universally adopted. Then, the XML-readable security policy could verify that a site protects the customer's data by saying that it adheres to the ISO 17799 security standards, for example.

The Revolution

Microsoft demonstrated its P3P in its browser in December at a privacy/security conference it bosted. YouPowered also has a browser plug-in. Netscape Communications Corp. is waiting for a secret third-party developer to deliver an open-source P3P reader for its browser at a yet-to-be-determined point in time. And AT&T is developing a P3P reader of its own, perhaps for commercial use in the future, according to Cranor.

Some criticize Microsoft's tool for not automatically reading full privacy statements. However, Polonetsky and Cranor both say that's a good thing, because to do otherwise at this early stage of adoption would block access to non-P3P-compliant sites. And the P3P reader operates much faster by reading just the cookie headers and reading full privacy policies only when the Web surfer specifically requests it, says Michael Wallent, the director of Microsoft's Internet Explorer team.

Critics have said they would also like to see P3P somehow create more merchant accountability. One could argue, however, that accountability and enforcement are already on the rise. Currently, some 50 privacy-related bills are bung up in Congress. And the FTC is using existing laws regarding deceptive practices, negligence and breacb of contract to go after companies that violate consumer privacy (first in line was DoubleClick).

Add merchant accountability to a sense of consumer empowerment, and e-commerce may actually live up to its promise.

"Statistics show that people on the Internet are concerned about identity theft and other privacy issues," says Gary Clayton, CEO of the Privacy Council, a privacy consulting group in Dallas. "I think P3P is the beginning of things to come."

What Is P3P?

■ **THE PLATFORM FOR PRIVACY PREFERENCES PROJECT (P3P),** developed by the World Wide Web Consortium, is an emerging industry standard that gives users more control over personal information gathered on Web sites they visit.

P3P consists of a standardized set of multiple-choice questions covering all aspects of a Web site's privacy policy. The answers offer a snapshot of how a site handles users' personal information. P3P-enabled Web sites make this information available in a standard, machine-readable format. P3P-enabled browsers read the snapshot and compare it to the consumer's privacy preferences. P3P enhances user control by putting privacy policies where users can find them, in a form users can understand, and enabling users to act on what they see.

– *Deborah Radcliff*

Privacy

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IN DEPTH RESEARCH ON P3P

Want to see the full P3P specification from the W3C? Could you use a tool to help create your own P3P policies? What other privacy might impact your organization?

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JOE AUER/DRIVING THE DEAL

Feeling Safe With IT Security Deals

TO IT PROFESSIONALS, the word *security* generally evokes operational-type thoughts. For instance, there's a need for physical security of the data itself. And there's software-controlled access to the secure network. Then there's security to control access to the organization's order entry and financial systems and to the underlying databases. Now, with the proliferation of Web-based systems, Internet firewall security has become a growing concern.

Regardless of the setting, security is a major control issue facing not only today's IT managers, but everyone else as well.

Although the security function is staffed internally, the tools we use, for the most part, are rarely homegrown. To build the security infrastructure, IT managers go outside to license software, purchase or lease hardware, and contract for consulting services. But there's always a contract involved — yours or the vendor's. From a deal management perspective, contracting for security is like any other technology acquisition: You must make sure you get what you pay for.

In the rush to build a security infrastructure, don't forget about the rights and obligations of the contract. You must take the time to do it right. Don't get caught with contract "gotchas" that come back to haunt your organization after the deal is done. Contract problems during the relationship take time away from other activities and can cost you significant bottom-line dollars, along with some career embarrassment. And the fixes are seldom easy.

The list of ugly contracting possibilities is much longer than this column. But it's important to focus on some of the more potentially problematic areas. Think of the following as a checklist to prevent any "gotchas" in security contracting. You can use it to level the negotiating field.

Software

When the contract involves security software, watch for the following things:

- The license should be perpetual, irrevocable and of sufficient scope to cover your entire organization.
- The vendor should guarantee that the software will perform according to the published specifications for at least a year. If it doesn't, the vendor should fix it at no charge. Or, if it can't be fixed, the vendor should refund your money and "make you whole" for the expenses you incurred related to its software.
- Maintenance should include enhancements (minor improvements and bug fixes) and upgrades.
- Insist on the right to install and test the software before paying the majority of the money specified in the deal. There's nothing like testing in your own environment to make sure you're getting what you think you're paying for.

Consulting

When the contract involves consulting services, watch for the following things:

- Make sure the consultant is fully qualified. Check references, and interview staffers assigned to your site.
- Make sure the consultant's responsibilities and expected results are carefully documented in the contract.
- Make your payments based on the consultant's achievement of acceptable results, not on the passage of time.
- Provide for frequent project status meetings.
- Make sure you own all of the consultant's deliverables.
- Make sure there's a confidentiality agreement in place between you and the consultant.

JOE AUER is president of International Computer Negotiations Inc. (*www.dobetterdeals.com*), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High Tech Acquisition Professionals. Contact him at joe@dobetterdeals.com.

Hardware

When the contract involves hardware, watch for the following things:

- Secure the right to test the hardware in your own environment before final payment.
- Check the vendor's warranty carefully, and understand what's included (such as parts or labor) and for how long.
- Make sure the configuration ordered is complete. Get the vendor to warrant that it has included all the necessary components. This helps avoid unexpected charges for additional equipment.
- Get a firm delivery date, and hold the vendor accountable with remedies if it fails to deliver on time.

In short, no matter how great your hurry to plug some hole in your security plan, always remember to make sure there's a well-thought-out contract. These guidelines will get you closer to a safe and "secure" agreement — and closer to getting what you think you're paying for.

QuickStudy Guide to Security

Find it online at *www.computerworld.com/cwi/quickstudy*

- **Competitive intelligence:** The process of monitoring competitors and the competitive environment using the systematic gathering of data from many IT-enabled sources.
- **Digital certificates:** Data files used to establish the identity of people and electronic assets on the Internet. They allow for secure, encrypted online communication and are often used to protect online transactions. They can be used as electronic passports to enable electronic transactions, but only if your infrastructure is set up to handle them.
- **Digital wrappers:** A program wrapped around another program or file, such as an e-mail message. The wrapper acts as a multifunction gatekeeper to do things like encrypt and secure e-mail or control the enclosed program from running under certain circumstances.
- **Intrusion detection:** The art and science of sensing when a system or network is being used inappropriately or without authorization. If having a firewall is like having a security guard at the door, then an intrusion-detection system is like having a network of sensors that tells you when someone has broken in, where he is and what he's doing.
- **Proxy server:** An Internet server that controls client computers' access to the Internet. Using a proxy server, a company can stop employees from accessing undesirable Web addresses, improve performance by storing Web pages locally and hide the internal network's identity.
- **Risk management:** The process whereby potential risks to a business are identified, analyzed and mitigated, along with the process of balancing the cost of protecting the company against a risk vs. the cost of exposure to that risk.
- **Virtual private network (VPN):** A secure, encrypted connection between two points across the Internet. VPNs transfer information by encrypting and encapsulating traffic in IP packets and sending the packets over the Internet; that practice is called tunneling. Most VPNs are built and run by Internet service providers.

Finjan's Software Blocks Active Content Threat

Start-up's product monitors suspicious activity from executable e-mail attachments

BY PIMM FOX

THERE'S NO shortage of reasons for corporate IT managers to be concerned — very concerned — about external threats to the security of their systems. Trojan horses and viruses that enter organizations as executable e-mail attachments are abundant, and antivirus software doesn't always catch them.

Finjan Software Inc.'s response is SurfinShield Corporate and SurfinGate, software that actively monitors downloaded active content, including executables, ActiveX and Java scripts, on individual desktops and at e-mail gateways.

By mooitoring code behavior, Finjan's products let companies enforce security policies by automatically blocking malicious activity before it causes damage to PCs. "The days of relying on reactive security products to stop malicious code attacks are over," says Phil Kantz, president and CEO of the San Jose-based start-up. "Companies cannot afford to wait hours or days for security updates to be protected from new attacks."

A security analyst at a major Northwest retailer, who declined to be named, can attest to that. "I saw SurfinShield, and then six months later, the Melissa virus hit," he says. "We decided to segmeot the responsibility of dealing with these threats by installing the desktop version, mainly because we had very few means of identifying the attacks before they hit."

He says the product has successfully blocked subsequent active cootent attacks before they could do damage.

"Finjan's software controls code behavior before it becomes active," says Christian Christiansen, an analyst at Framingham, Mass.-based IDC. "It caches attacks before they can do harm."

"Monitoring programs for malicious behavior, or sandboxing, has come of age and proved its effectiveness against worms like 'I Love You' and Anna Kournikova," says Yigal Edery, Finjao's director of research and development.

Plus, Internet worms can change their characteristics every four to six hours, which is faster than antivirus software vendors can turn around virus signature updates, adds Dave Kroll, the firm's director of marketing.

SurfinShield Corporate runs on each PC in the background, watching for file violations and checking for attempts to delete files, access registries or access the operating system. It also has a central console for setting policy, monitoring and administering SurfinShield across all desktops.

Administrators can also set policies that let some ActiveX controls in while blocking others. "We needed to offer software that allows for specific cootrols to run software that uses ActiveX controls like WebEx, while still enforcing security policies," says Kroll. "SurfinShield does that."

Finjan's SurfinGate protects e-mail gateways running on Windows NT, Windows 2000 or Unix servers. Finjan says its customers include the Internal Revenue Service, the European Parliament and the Pentagon.

PHIL KANTZ, CEO of Finjan Software, says his company's products take a proactive, rather than reactive, approach to security.

Finjan Software Inc.

2860 Zanker Road, Suite 201
San Jose, Calif. 95134
(408) 981-1690

Web: *www.finjan.com*

Niche: its software monitors executable e-mail attachments and other active content and blocks suspicious behavior. It protects by monitoring activity, rather than relying on virus signatures.

Company officers:
- Phil Kantz, acting president and CEO
- Jeff Feuer, vice president and chief financial officer
- Yigal Edery, director, research and development

Milestones:
- January 1998: Company founded, SurfinGate released.
- Q1 1999: SurfinShield Corporate released.
- July 2000: Awarded a U.S. patent for the code inspection technology.

Employees: 60

Burn money: $20 million from Bessemer Venture Partners LLC, Star Ventures Capital LLC, RRE Ventures LLC, CSK Venture Capital Co. and Security Dynamics, a subsidiary of RSA Data Security

Products/pricing: SurfinShield Corporate 5.5: $59 per seat; SurfinGate 5.6: $49 per seat.

Customers: European Parliament, U.S. Pentagon, IRS, others.

Red flags for IT:
- The products won't help with pre-existing viruses.
- Some antivirus software vendors are adding this capability.
- Products are a supplement to, not a replacement for, antivirus software.

COMPUTERWORLD emerging companies

People Problem

When installing SurfinShield Corporate oo desktops, IT managers may need to overcome some user resistance, the Northwest retailer discovered. "We also had to explain to our 600 desktop users why we were installing this; we weren't trying to censor what they looked at, but ratber we had to block applets that posed a threat to our system," says the company's security analyst.

He did have a few other issues. The security signatures in SurfinShield were corrupted when desktop users installed Microsoft's Internet Explorer 5, but Finjan fixed this in its current version, the analyst says. And SurfinShield doesn't audit the behavior of macros.

"What using SurfinShield brought to my attention is that when you attach to any Web site, you are basically giving that Web site entire rights to your system," says the security analyst. "We tell people, 'Thou shalt not open executables.' But they do it anyway. SurfinShield is now blocking that."

[the buzz] STATE OF THE MARKET

Riding the Cybercrime Wave

Finjan is at the right place at the right time. Gartner Inc. in Stamford, Conn., estimates that the economic cost of cybercrimes will increase 1,000% to 10,000% through 2004, and attacks generated through executable e-mail attachments are an increasing part of the mix.

Finjan operates in a specialized security space: Its products perform real-time monitoring of inbound active content in e-mail attachments and block associated activity produced by these viruses. But because the software can accommodate different profiles, administrators can allow certain types of ActiveX content to flow to the end user. This is called "white listing," and a few competitors in the field also offer some degree of this customization.

According to IDC analyst Christian Christiansen, the market for this type of software is hard to gauge because it's part of larger offerings from companies such as Islandia, N.Y.-based Computer Associates International Inc. CA's eTrust product, for example, works within the Unicenter TNG Framework to block some types of active content but normally reacts only to known viruses.

Some vendors of intrusion detection software are also adding blocking of active content for servers. For example, Atlanta-based Internet Security Systems Inc. recently added such capabilities to its RealSecure intrusion detection software.

As for offerings from traditional antivirus vendors, Gartner analyst Bill Malik says Symantec Corp. in Cupertino, Calif., and Network Associates Inc. in Santa Clara, Calif., offer similar capabilities but Finjan's is more advanced.

Pelican Security Inc.

Chantilly, Va.
www.pelicansecurity.com

Pelican Security's SafeTnet desktop software also detects and isolates downloaded active content. But unlike Finjan, the company says its products let users secure applications and systems by determining who has access to make changes. It blocks content by determining what can be changed, as opposed to what can be let through.

[www.bmc.com]

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Risks of Doing E-Business

The threat from computer crimes and other online security breaches has barely slowed, never mind stopped, according to a recent survey of 538 security professionals in U.S. corporations that was conducted by the Computer Security Institute and the FBI's Computer Intrusion Squad.

Reported breaches in the past six months	85%
Reported financial losses in the past six months	64%
Could quantify financial losses	35%

TOTAL QUANTIFIABLE LOSSES

Year 2000	(265,589,940)
Year 2001 (projected)	(377,828,700)

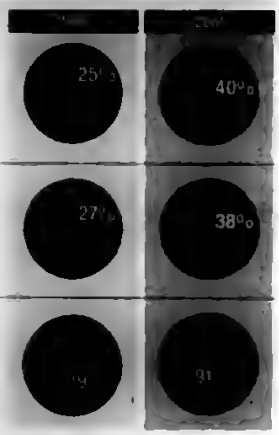
TYPES OF QUANTIFIABLE LOSS

Theft of proprietary information	$151.2M
Fraud	$92.9M

ATTACKS REPORTED TO LAW ENFORCEMENT

Year 2000	25%
Year 2001 (projected)	36%

ATTACKS ON THE RISE



SOURCE: COMPUTER SECURITY INSTITUTE/FBI COMPUTER INTRUSION SQUAD, WASHINGTON; SURVEY OF 538 IT SECURITY PROFESSIONALS

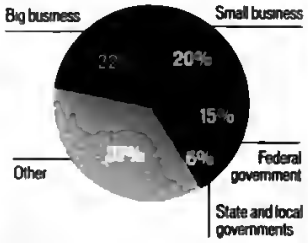
Net Intrusions Cost Billions

Though the cost of intrusions is high, many companies still haven't devoted many resources to protecting themselves.

Total annual cost of online security breaches to corporations	$15B
Percentage of companies that have yet to implement adequate security	30%
Percentage of companies that spend 5% or less of their IT budget on security for their networks	50%

SOURCE: DATAMONITOR PLC, NEW YORK

Who does the best job of protecting data on computers?



SOURCE: INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA, ARLINGTON, VA

Only **0.4%** of a company's revenue, on average, is **dedicated to information security** in the U.S. **By 2011,** however, that figure **will accelerate tenfold to 4% of revenue** for U.S. companies, according to Gartner Inc.'s total cost of ownership model for information security.

Addressing E-Business Security Challenges

PREPARATION

1. Begin with a strong security policy as a foundation for an architecture. The policy should specify what, how, where and by whom allowed activity is performed on corporate servers or networks.
2. Classify all assets and types of users.
3. Reinforce the basic safeguards for physical and perimeter security.
4. Deploy policy-based centralized management.
5. Focus on strong authentication and authorization.
6. Commit to ongoing audit and review.

SOURCE: IDC, FRAMINGHAM, MASS.

RESPONSE

1. Employ security professionals (such as Tiger/SWAT teams) remotely or on-site.
2. Identify, contain and disconnect access to the infected portion of a network.
3. Monitor and record network intruders' actions, when possible.
4. Obtain images and data logs of networked systems.
5. Protect images and evidence on safe media.
6. Assess economic damage.
7. Clearly and concisely report the event, countermeasures and status to senior management.

SOURCE: IDC, FRAMINGHAM, MASS.

U.S. Incident Response Services Expenditures by Service Activity

Key findings include the fact that services will experience growth respective to the number of cyberattacks, and security breaches and individual service activity spending over time will increase or decrease at varying rates, according to incident severity and frequency.

	1999	2000	2001	2002
Cyberforensics	$14M	$24M	$36M	$45M
Incident-response services	$74M	$94M	$129M	$152M
Total	**$88M**	**$118M**	**$165M**	**$197M**

SOURCE: IDC, FRAMINGHAM, MASS., 2001

Virus Alert

Downtime From Viruses

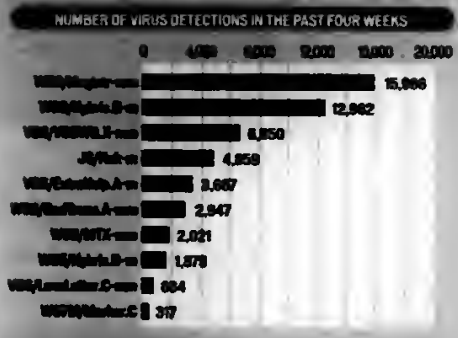
Judging by server downtime, which increased substantially from 1999, viruses are starting to take their toll on network performance.

	1999	2000
Servers down for more than one hour	9%	64%
File problems from viruses	50%	66%
Companies with data loss	31%	40%

SOURCE: ICSA LABS, CARLISLE, PA.; ICSA LABS 6TH ANNUAL COMPUTER VIRUS PREVALENCE SURVEY 2000

Top 10 Viruses

The most active viruses in the past four weeks, according to MessageLabs Ltd., a U.K.-based virus-detection agency.



E-Mail Flu Season

The following graph plots the ratio of viruses to e-mail during the past 12 months. You can see that the ratio varies from one virus in every 1,400 e-mails in September 2000 to one in every 400 in May 2001.

The Guardian

Protecting the integrity of data is only half the job of the corporate security manager. The other half is persuading employees to protect their data wherever it is.

By Deborah Radcliff

MOST COMPANIES wouldn't think of putting information security, physical security and facilities into one unit. Yet 12 years ago, Eduard Telders made combining the management of these units a condition of his employment at Pemco Financial Services in Seattle.

Now, Telders says he knows of a dozen or so Fortune 500 companies, including Microsoft Corp., that have put physical and technical security management together as a single function. And at both Microsoft and Pemco, the position was handed to a technical security manager, not the physical security manager.

It takes a unique technologist to make this leap. Managing these once-disparate groups calls for thinking far beyond "making the wires hum," Telders explains. This renaissance position calls for a manager who can think about how those wires open the company to the risk of internal embezzlement and fraud, data theft and customer privacy violations.

That means the corporate security manager must also stay up to speed on the physical risks to corporate data, such as building-access violations like "shoulder surfing" (following a badged employee through an open door). Telders stays up-to-date through his memberships in organizations such as the American Society of Industrial Security and by maintaining his standing as a certified protection professional, which he received in 1999.

Today, most investigations into security threats or violations require both physical and technical investigative techniques. For example, when Pemco had problems with employees sending hate mail and surfing the Web for pornography late at night a year ago, Telders' team first tracked physical access to areas of the building through its key-entry system. Then they checked to see who was logged on in those areas at night. Finally, they examined the log files on those systems to see what was being accessed.

"All companies have . . . abuses of systems and other [human resources] problems," Telders notes. "Computers have just become one of the tools to commit [electronic] indiscretions."

Along with knowledge of the IT and physical aspects of data protection, Telders must rally every employee around protecting the company's data in all forms. For example, when users said no one would mess with their computers left on at night, Telders suggested that they cash their paychecks and leave the money on the keyboard over the weekend to see if it would still be there Monday. That clicked with them.

"The first thing I learned about managing the physical was that communication is extremely important with users whom you are trying to put tight controls around," Telders says. "They need to understand in their own terms the whys and wherefores of how the entire security system works. And you must be very responsive to their problems."

Ironically, it's the workers on his old stomping grounds, the IT group, who he has to keep the closest eye on, he says. They're the ones trying to punch holes in the firewall to drop in Digital Subscriber Lines and download the latest cool stuff. And they're the ones who see his security policies as an opposition to them accomplishing their mission of making the wires hum. In fact, Telders has to occasionally quash rebellions among IT group employees when they try to wrestle information security management away from Telders' unit.

Although Telders can empathize, he says his real responsibility is to the owners of the data — the shareholders and the board.

"We represent the owners of the data. And based on the rules of the data owners, we make determinations of what is and is not appropriate," he says.

ONLINE

Profile

NAME: Eduard Telders

TITLE: Corporate security manager

REPORTS TO: Chief technology officer

DIRECT REPORTS:

- Security compliance officer (physical security management)
- Safety and security coordinator (safety and physical security administration)
- Senior information security analyst (engineering and design, penetration and intrusion detection, forensics)
- Two information security analysts (daily administration/project work)

REQUIREMENTS:

- Basic understanding of operating systems, networking and IT security
- Risk-management background
- Physical security certifications and training
- Master's degree (Telders' is in biology)
- Be adaptable, ethical and a strong business communicator

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[redacted] 100 IT Leaders is [redacted] annual special supplement [redacted] published in January 2002, will [redacted] technology people who [redacted] their organization [redacted] foster ideas and creative [redacted] innovative solutions [redacted] effectively manage and [redacted]

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Chief Information Technology Officer, Northstar Energy
Enterprise Wireless in a High Risk Industry

Kevin Brough
Managing Director, Pacific Region,
Nokia Networks
Business Drivers for Enterprise Wireless

Rebecca MacKinnon
President, Chief Executive Officer and
Founder, BeyondNow Technologies
Transcending Barriers with Wireless Solutions

Tom Magill
Vice President Logistics,
McKesson HBOC
Mobile Computing Leads the Way to Quality

Tyler Nelson
Vice President Business Development, Research in Motion
Wireless Technology FITS Your Networking Strategy

Simon Pugh
Vice President, Infrastructure and Standards,
Mobile Commerce, MasterCard, International
Loss of Innocence: Security in a Wireless World

Ernest Teves
Chief of Research and Development,
M.D. Anderson Cancer Center
The Perils and Pitfalls of Deploying a Wireless Strategy

Ronald Willis
Vice President Consumer Business,
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SOFTWARE ENGINEER: The Software Engineer will work to a small team of Engineers to code and test applications on a Windows platform developed using C and VC++. Will design and develop software for the utility industry, using C/C++, employing component based enterprise solutions. Will develop a web based Graphical User Interface (GUI) using HTML, DHTML or Java. The Software Engineer will also use Multi-threading and Interprocess communications. Requirements: B.S. or equivalent in Computer Science, Electronics, Electrical Engineering or a related field and four (4) years experience in the job offered OR in software application engineering for the utilities industry. Demonstrated expertise using two of the following tools: VC++, RDBMS, ODBC, MTS, MSMQ, and XML. Offered salary is $74,000/year for full-time employment (min. 40 hours per week) and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 20002249 Labor Exchange Office 1 & Stanford Street, 1st Floor Boston MA 02114

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Programmer/Analyst. Dsgn, dvlp & implmt commercial s/ware applics using C++ prgmg lang., commercial applic frameworks, & object-oriented methodologies in C/S d/base envmt; identify, dsgn, dvlp & implmt object-oriented & generic reusable applic components & parts; review & re-factor existing code base to improve code quality & components' reuse rate & to resolve performance/resource consumption problems. BS in Math, Comp Sci, Physics, Eng or rel. field + 1yr exp in job offd or rel. occupation such as S/ware Engr or similar duties under different job title. Exp to incl MacOS &/or Win 95/NT & C++ & object-oriented prgmg. Demonstrated ability to analytically solve problems & communicate clearly. 40 hr/wk, $39K/yr. Must have proof of legal auth to work in US. Send resume to IA Workforce Ctr, 1700 S. 1st Ave., Ste 113 & PO Box 2390, Iowa City, IA 52244-2390. Pls refer to JO #A1101409. Employer paid ad.

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Software Engineers (multiple positions) sought by Dallas, Texas-based Comp S/ware Consultancy firm. Must have Bach or equiv in Comp Sc or engg & 1 yr s/ware exp. Respond to: HR Dept, Innovative Business Solutions, Inc., 9353 Alpha Road, Suite 106, Dallas, TX 75240

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Lead team of design/development engineers. Code, identify, cost, and deliver enhancements. Design and code GUI. Perform test processing and design data structure. Min. req's: Bach in comp sci, electronic eng, or related field plus 5 yrs' exp in s/ware design & dvlpmt. Must have unrestricted authorization to work in U.S. Please indicate Reference Code IMAA when sending your resume.

An EOE. Please mail or fax your resume, indicating appropriate Reference Code, to: Iris Associates, ATTN: Kendra Langevin, Human Resources, Five Technology Park Drive, Westford, MA 01886, Fax: 978/692-5001. Email: kendra_langevin@iris.com

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Position: Senior Software Engineer. Qualifications: Must have at least an MS degree in Computer Science, Electronic or Electrical Engineering or related plus at least 3 years job-offered experience. In lieu of MS degree, would also accept a BS degree or its equivalent in the above-mentioned fields of study plus five years of progressive job-offered experience. Must have proof of legal authority to work in the U.S. Duties: Design, implementation (in C language) and testing of multimedia internet protocols such as H-323 based (a VOIP networking protocol) audio conferencing, which flows into Company's GSM product across various platforms. Utilize good understanding of operating system internals to analyze, debug & fix software defects identified as part of H-323 interworking function for GSM product, as well as a good understanding of the underlying hardware. Area of Employment: Colorado Springs, Colorado. Salary: $65,410 per year, 40 hour work week. Contact: Send resume to Jim Shimada, Colorado Department of Labor and Employment, Tower 2, Suite 400, 1515 Arapahoe Street, Denver, CO 80202-2117, refer to Order Number CO JL 11200**.

Computer Profs: (1) Openings for Prog/Anal, Syst's Anal, DB Admin or Computer Engg. Design, develop & test computer progs for busn appl's using Java, Lotus Notes, C++, VB, ASP, Unix, Oracle, SQL Server. BS in Comp. Sci, Comp Engg, Info Syst's or Elec Engg (or equiv) & 1 yr exp. (2) Openings for Sr Prog Anal, DB Design Analyst, DB Admin or Computer Engg. Design, develop & test computer programs for busn appl's using Java, C++, VC++, VB, ASP, Unix, Oracle, SQL Server. MS in Comp. Sci, Comp Engg (or equiv) & 5 yrs exp. Resume: HR Dept, Fulcrum Logic, Inc., 319 South Ave, Ste 102D, Fanwood, NJ 07023.

Senior Software Developer - Duties include designing and developing advanced computer software systems using programming languages namely JAVA, C/C++ as well as tools such as Visual Café, Visual C++, developing web and graphical user interfaces from new and existing systems, using core web technologies-JSP, Servlets, COM, OLE and MFC in implementing solutions, preparing flowcharts and design document, participating in design meetings and consulting with other staff to evaluate interface between hardware and software - 40 hours per week, 9:00am to 5:00pm - 5 days a week. Requires a bachelor's degree in computer science & years experience in the job offered or 5 years experience in the related occupation as a senior technical consultant or programmer/analyst. Related experience in the occupation as senior technical consultant or programmer/analyst in using object oriented design techniques, using programming languages C/C++, Visual C++, MFC using interface design, advanced software programming on the Microsoft windows operating system, preparing flowcharts and design documents, evaluating user requests for new or existing systems. Job is located in Naples, FL. $71,000 per year. Send resume to Agency for Workforce Innovation/Bureau of Workforce Program Support, PO Box 10869, Tallahassee, FL 32302. Re JOFL # 2191509

SAP PROJECT ENGINEER: Multiple openings for full-time SAP Project Engineer. Responsibilities include: manage the design, development, and implementation of information systems utilizing ABAP, Java, and UNIX; manage the customization and integration of SAP and other software solutions; manage the customization of SAP R/3 and implement ERP packages; and manage the configuration of SAP software for all areas of corporate operations on a fully-integrated, real-time online base. Travel as required to Heidelberg sites throughout the United States Monday - Friday. Must have a Bachelor's Degree or foreign and/or education equivalent in Mechanical Engineering and 5 years of progressive experience in SAP systems analysis, engineering, or related field or a Master's degree or educational and/or foreign equivalent as described and three (3) years of progressive experience as described. Salary: $110,360/year and up, commensurate with experience. Must have proof of legal authority to work in the United States. If interested, submit resume to:

Ms. Alicia Stigman
Manager, Human Resources
Heidelberg USA Inc.
1000 Gutenberg Drive
Kennesaw, Georgia 30144

PROGRAMMER/ANALYST
DATABASE ANALYST

Offshore Digital Services seeking candidates with commercial experience in the areas listed below -

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Fax: 510-483-1819 Email: personnel@ods.com

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WINDOWS: VC++, VB, PB, MFC, OLE/COM, Admin

REAL TIME: Microprocessor, RTOS Programming

INTERNET: Java, Javascript, CGI, Perl, WAP, Admin, Active X, ASP

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Sales Manager / Marketing Manager: must have at least 2 years of Sales experience, BA Degree or Foreign Equivalent Degree and basic computer skills

Multiple positions exist at various sites across the US.

If you are interested please mail your resume clearly mentioning the reference number CW0300 to **Attention Recruiting Dept., Job Ref. CW1999, Magna Infotech Ltd. 1 Pedanaram Rd., Suite 208, Danbury, CT 06811-4833.**

Software Project Manager wanted by software R&D co. in Culver City, CA. Must have bachelor's degree in computer sci, engineering or rel field + 2 yrs exper with complex large scale s/w projects through all phases in UNIX envir using C, C++ and obj oriented devel. Will supervise other s/w professionals. Send resume to Human Resources, 400 Corporate Pointe, Suite 855, Culver City, CA 90230.

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SOFTWARE ENGINEER to design and develop database systems using Oracle Developer and web development tools; and design, develop, analyze and implement client/server and web based applications including GUI design and development using PL/SQL and SQL*Plus on various operating systems. Require Masters in Computer Science/Electronics Engineering and three years experience in the job offered or any experience providing skills in described duties. Bachelors and five years experience may be substituted for Masters and three years experience. Salary: $67,050 per year, 8 am to 5 pm, M-F. Apply with resume to Diradix Systems Development, Georgia Department of Natural Resources, 205 Butler Street, Suite 1252, Atlanta, GA 30334.

Software Developer. Develop and customize base-line web applications for Human Resource Management. Responsible for security administration of database, quality assurance, and customer support. Must have B.S. in Computer Science, Engineering, or related field, 2 years' experience as Software Developer or any suitable combination of education, training or experience. Must have knowledge of ASP, JavaScript, HTML, VBScript, Access, and SQL. Send resume and cover letter to HRSoft, LLC, Attn: Paul Brook, 505 North 4th Street, Fairfield, Iowa 52556.

Application/Graphical Web Developer needed in Dallas, Texas area for website and web application development, specializing in web graphics/human interface design and application business material graphics design, graphical user interface standards research development, client-side/server-side web programming, database programming and web development using graphical tools for image editing and graphics design, programming environment tools for software development. Requires 3 years in job offered. Send resume to RiverRock Systems, P.O. Box 990 Addison, Texas 75001-0990 refer to Code: GUIWD

Systems Engineer needed to research, design and develop computer software systems in conjunction with hardware product requirements, applying principles and techniques of computer science, engineering and mathematical analysis. Degree and experience required. Send resumes to Michael T. Wilson, President, Joseph Graves Associates, Inc., 3077 East 98th Street, Suite 160, Indianapolis, IN 46280-1970.

Software Engineer Plan, develop, test and document PC-based software modules to implement the intelligent process optimization algorithm using C++, and Windows/NT/2000. Develop information retrieval and database processing application and customized graphic user interfaces. Must have B.S. in Computer Science or related field and knowledge of C++, COM+, Visual Basic, SQL, ASP and HTML. Send cover letter and resume to: Stockpoint, Inc., Attn: Ronald E. Stablein, 2600 Crosspark Road, Coralville, Iowa 52241.

Full time Web Designer. Responsibilities include: Design, develop and implement website applications for prominent technologically advanced financial services administration company. Construct HTML pages utilizing Jscript, JAVAScript, CGI Script, and FrontPage 98; design and develop cascading file sheets and animated pages utilizing Dreamweaver and Adobe PhotoShop; and design and test page links. Must have a Bachelor's degree or its foreign and/or educational equivalent in Computer Science and two years of experience in web development or software engineering. Must have proof of legal authority to work in the United States. Salary: $ 68,203 per year and up, commensurate with experience. If interested, submit resume to:

Ms. Katherine Kyte
Warranty Corporation of America
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Norcross, Georgia 30071-1357

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Systems Administrators needed to configure, administer, maintain & manage various servers & systems. Apply to: Global Consultants, 601 Jefferson Rd., Parsippany, NJ 07054.

User Support Analyst. 8a-5p, 40 hrs/wk. Analyze, test & resolve comp h/ware & s/ware problems of users related to dsgn & implmtn of bus applics, prgms & operating systm using Oracle, VB, SQL, dbase & Lotus 1-2-3. Bach or equiv deg in Bus Admin, Comp Sci, Electrical, Electronics or related field of Engg. 2 yrs exp in job offd or as Systms/Prgmr Analyst. Send resume w/ref #003 to: Dushyant Patel, President, Nextgen Infotech, Inc., 2090 Beaver Ruin Rd., Ste 600, Norcross, GA 30071.

SOFTWARE ENGINEER sought by computer consulting co. in Houston, TX. Must have M.S. in Comp. Sc., or Electrical Engineering plus 6 mos. exp. Respond by resume to Mr. J.L. Ogle, President, Network & Programming Services, Inc., 900 Threadneedle, Suite 450, Houston, TX 77079.

Full time Computer Consultant responsible for design, write and document new on-line and batch applications for the AS/400 system using RPG/400 ILE, CL, Query/400 and SQL programming languages. Develops interfaces between systems in a multi-platform environment, specifically between IBM AS/400, IBM Mainframes and PC platform. Must have a Bachelor's degree in Computer Science and 2 years of experience in the job offered or position with same duties. Salary $70,000/yr. Send resumes to: Laura Kelley at ACSYS Inc. 2400 Lakeview Parkway, Suite 500 Alpharetta, GA 30004.

Call your
ITcareers Sales Representative
or Janis Crowley
1-800-762-2977

It may not be grabbing the headlines as much as other stories, but there are a bevy of IT companies who continue to face that great, though tough, situation of being somewhere between "whoa" and "wow" – slow this thing down and let's race to keep up.

The majority of such companies are those using the Internet as an enabler for a strong business proposition – from helping job seekers to cutting the red tape involved with everyday business operations.

GovJobs.com of Costa Mesa, CA, falls within the first category – using the Internet to enable job seekers to scan the opportunities of the United States' largest employer, its federal, state and local government agencies.

GovJobs.com lists jobs from recreational coordinators to IT professionals, pairing up job applicants with the jobs listed by employer agencies. In addition, the site provides pay tables for federal positions and tips on landing jobs with the government agencies.

The second category is one filled by **Freddie Mac**, a leading mortgage broker based in McLean, VA. **Freddie Mac** provides underwriting products to assist mortgage lenders in providing home loans to their customers. "One of our goals is to respond to mortgage lenders and brokers on a purchase decision of a mortgage within two minutes," says Dwight Handon, senior director of e-business, infrastructure and integration at **Freddie Mac**. "This requires the most savvy of information technology for our customers and for the 4,000 people who work here."

Jason Whitley, president and general manager for **GovJobs.com**, says his company continues to hire up to meet market demand for the three-year-old company. "There is the potential for ground-floor opportunities," he says. The company will be extending its services in 2002 to include job fairs to be held across the country and web development for smaller city and township governments who don't currently have an Internet presence or online employment pages.

"We are looking for dot-com enthusiasts with, or without, human resources or staffing backgrounds who want to learn about and work with the nation's government," Whitley says. "We'll be hiring executive management, operations and customer service, systems and security personnel."

The IT challenges at **Freddie Mac** range from automated underwriting to a dark fiber network on the **Freddie Mac** campus to deploying applications using JAVA technology. "From a data warehousing standpoint, we are making terabytes of data easily accessible to all employees, anywhere at any time," says Handon.

In addition to being named one of *Computerworld*'s "100 Best Places to Work in IT" and being recognized for its benefits and compensation program, **Freddie Mac**, along with ESI-International, designed a seven-course training program to significantly increase employees' project management skills. "The program provides our employees with a master's certificate in IT project management from the George Washington University," explains Handon. "This program, along with the many others we offer, demonstrates our commitment to training and development for our employees." Through May, 29 employees have graduated from the program and another 140 are currently enrolled.

For more job opportunities with Internet firms, turn to the pages of ITcareers.

- If you'd like to take part in an upcoming ITcareers feature, contact Janis Crowley, 650.312.0607 or janis_crowley@itcareers.net.
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COMPUTERWIT
Programmer-Analyst. Requires a Bachelor's degree or higher in Computer Science, Mathematics, or Engineering and 2 years experience in the job offered or 2 years experience in the development of SAP R/3 modules for financials, manufacturing and sales/distribution. All of the stated experience must have included Application Link Enabling (ALE) and Business Application Programming Interface (BAPI) development and configuration in SAP R/3 development of SAPScript in SAP R/3 development of enhancements, reports, interfaces & conversions in SAP R/3, and performance analysis & tuning of SAP R/3 programs & dialogs. Experience must include one full lifecycle of SAP R/3 development. [Will also accept foreign education deemed equivalent to a bachelor's degree or three years of university-level credit emphasizing one of the stated fields & one additional year of the stated experience.] Engage in development of SAP R/3 modules for financials, manufacturing, and sales / distribution over a full lifecycle in an automotive production facility. Develop SAPScript in SAP R/3, as well as engage in Application Link Enabling (ALE) & Business Application Programming Interface (BAPI) development and configuration in SAP R/3. Develop enhancements, reports, interfaces, and conversions in SAP R/3. Resp. for performance analysis & tuning of SAP R/3 programs & dialogs. Enhance the LIFO, API, and Super-Backflush custom processes that are built in SAP R/3. Provide comprehensive technical designs by way of data flow diagrams, unit test plans, and pseudo code. Construct efficient ABAP/4 code and engage in applications development using IDOC and BAPI structures. Provide technical support to the existing production environment. Apply with resume to: Ms. Jennifer McKenzie, Delphi Automotive Systems Corp., 5725 Delphi Drive, Troy, Michigan 48098

Real estate related financial information services company located in Ft. Lauderdale, Florida, seeks to hire Software Programmer/Analyst to plan, develop, test and document computer programs, program in Adabas/Natural, Cobol and JCL, evaluate clients systems and program requests, develop and/or acquire components and/or acquire systems solutions for clients, create solutions from functional and/or technical specifications; create user documentation and technical documentation for clients, perform unit testing and system testing, perform debugging and troubleshooting, ensure standards compliance; and provide training and technical support and maintenance to clients. Bachelor's degree in Computer Science or related field or work experience equivalent to a Bachelor's degree in Computer Science or related field required. Two (2) years of work experience as a software programmer/analyst or in software design and/or development also required. The two (2) years of work experience or related work experience should include tow (2) years of Cobol and JCL and one (1) year of Adabas/Natural. Salary: $48,040.00 per year. Work hours: 8 a.m. to 5 p.m., 40 hours per week. Send resume to Agency for Workforce Innovation, ALC/Unit, P.O. Box 10869, Tallahassee, FL 32302-0869. Job Order# FL-2185525. EOE

SOFTWARE ENGINEERS, CONSULTANTS, PROGRAMMERS, PROGRAMMER ANALYSTS, PROJECT LEADERS

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SYSTEMS ANALYST Responsible for gathering and analyzing user requirements to automate processing or to improve existing computer systems. Using knowledge of hardware, software, programming languages and operating systems including knowledge of Web based systems architecture, relational database, UML (Unified Modeling Language) and Object Oriented Analysis and Design methodology. Ability to plan, implement, and and troubleshoot system software; ability to transform user requirements into technical specifications; ability to train users during implementation phase. Minimum of 2 years experience to job offered. Competitive salary, full time job. Mon – Fri (may require evening and weekends), positions available in Coral Springs, FL, Atlanta, GA, Albany, NY. No calls, mail resumes with reference number 010 att: L. Fernando Jaramillo, Sothis: 2900 University Drive, Coral Springs, FL 33065

DATABASE ADMINISTRATOR to administer, develop, analyze, test, implement and maintain Oracle databases using Oracle PL*SQL, SQL and PowerBuilder under SUN Solaris, AIX, Linux, UNIX and Windows 95/98/NT operating systems; Administration duties include installation of Oracle databases and development tools, backup and recovery, creation and monitoring of users, tables, indexes, constraints, views, synonyms, role and privileges. Tune databases for optimum performance and perform troubleshooting. Require B.S. degree in Computer Science and Engineering discipline or a closely related field with five years of progressively responsible experience in the job offered or as a Programmer/Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Salary: $75,000 per year, 8:30 am to 5:00 pm, M-F. Send resume to Sherry D. Lucki, President, ABT Solutions, 8517 South Park Circle, Suite 218, Orlando, FL 32819; Attn: Job AT

Software Engineer
Des, dev and imp sophisticated web based applications. Plan and dev IT sys and multi-tier distributed computing s/w apps. Exp must inc proficiency in OOD, OOA & modern s/w methods for bldg sys arch & apps. Cands must be Sun Certified in Java & have exp with current techs: Java, JDK, J2EE, EJB, Servlets, JSP, Java Beans, JFC/Swing, JDBC, ODBC, CORBA, COM/DCOM. Must work in a team with multiple platforms inc Sun solaris & UNIX. Adv knowledge of RDBMS systems exp Oracle required. Resp inc app life cycle dev, imp and rollout. Ability to produce tech doc req. MS in CS or App. Math + min. 3 years exp. Send 2 copies of resume to GRT Corp, Dept. FG, 777 Summer St., Stamford, CT 06901 EOE/M/F/D/V

Senior Consultant-Team Leader
Lead team in the design, development & testing of software for internet applications. Database design. Tools: Visual Basic, MS Access, MS-SQL Server, Active Server Pages, HTML, Windows NT. M.S. in Comp. Sci. or Mgmt. Info. Systems + 1 year exp. in job offered or as a Consultant req'd. Prev. exp. must include Visual Basic, SQL Server, Active Server Pages. 40 hrs/wk, 9am-5pm, $62,000/year. Applicants must show proof of legal authority to work in the U.S. Send 2 copies of resume & cover letter to Illinois Dept. of Employment Security, 401 S. State St.-7 North, Chicago, IL 60605. Attn: Leila Jackson. Refer V-IL 24377-J. Employer Paid Ad. No calls.

Sr Oracle Production Database Administrator sought by Co involved in development of content for integrated IT learning solutions in Rochester, NY. Must have MS in eng or computer discipline and 5 yrs software eng or development exp. Respond to Lorrie Carter, HR Dept., Element K, 500 Canal View Blvd, Rochester, NY 14623, e-mail to oraclejobs@elementk.com, or fax to (716) 295-9121

SOFTWARE ENGINEER to design, develop, test and implement application software in a client/server environment using C, C++, Visual C++, PowerBuilder and Oracle on Windows NT and Novell platforms. Require B.S. degree in Computer Science/Engineering, or a closely related field with five years of progressively responsible experience in the job offered or as a Programmer/Systems Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Sherry D. Lucki, President, ABT Solutions, 8517 South Park Circle, Suite 218, Orlando, FL 32819; Attn: Job JD.

SEEKING DATABASE CONSULTANT The City of New York/Parks & Recreation seeks a Database Consultant Bachelor's Degree in Computer Science, Engineering, Business, or related field & background in Oracle and MS Access. Send or fax resume to M. Brenner, MIS Director, CNYPR, 16 W. 61st St., 9th Floor, New York, NY 10023. Fax: 212-830-7913.

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- Programmers

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Website:
www.hatcherassociates.com

B2B Workforce, Inc., a consulting and information technology company, is looking for Consultants and Senior Consultants with 3 years of IT industry exp plus 1 year of Siebel exp for work throughout the U.S. Applicants must have Masters degree. Competitive salaries. Please submit resumes to Bob Bailey at rbailey@b2bworkforce.com

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Celtech Systems, Inc. has immediate multiple openings for exp ed IT professionals in the following areas (various skills combination req'd.): Pro*C, Unix, Oracle 7.x, SQL*Forms, C, VB, Developer 2000, SQL Server, DB-2/UDB. Some positions require MS or equiv. CS, Engg, Math, Bus. Admin, or rel. field while others require BS or equiv as above. Pay commensurate with exp. Foreign equiv of educ. and/or combination of educ. /exp will be accepted. Travel/relocation reqd. Resumes & salary expectations to HR, 6200 The Corners Pkwy, Suite 315, Norcross, GA 30092

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Sr. Consultant – San Francisco
Manager – San Jose
Manager – San Francisco

Customer Relationship Management
Sr. Consultant – Boston

Supply Chain Management
Sr. Consultant – Atlanta

Please send resumes to:
HR Department
1717 Main Street
Suite 500
Dallas, TX 75201

SOFTWARE DVLPMT ENG Program for projects in video/television industry. Design, dvlp, maintain video software. Bachelor's Computer Sci, Eng or equiv + 2 yrs exp in job or as Programmer/Analyst. Exp w/ MS Visual C++ & MFC in Windows NT reqd. $63K/yr. Send resume to: B. Staley, Video Technics, One Corporate Blvd #220, Atlanta, GA 30329

Vision Consulting USA, an e-business and technology company, is seeking qualified candidates for the position of Database Architect/Administrator. Qualified candidates should possess a Bachelor's Degree in Computer Science, Engineering or a related field and relevant professional experience, including strong database design and implementation of databases and related technologies. Send Resume to: Sue Ellen Cooper-Jones, Recruiting Manager, Vision Consulting USA, Inc., 110 East 42nd Street, Suite 515, New York, NY 10017

Sr. Systems Programmer-Install, analyze, design, test, and document new and existing operating systems. Using an IBM Mainframe OS/390, Assembler, REXX, CLIST, CICS, SMP/E, RACF, TCP/IP, LAN and WAN. Unix, DFMSMS/HSM, HCD/IOCP, COBOL. BS degree in Info Tech, 2 yrs of exp or 2 yrs training with MVS/OS390. On-call 24/hr. $62,000. Send resume to South Dakota One-Stop Career Center, Po Box 5778, Sioux Falls, SD 57117-5778, phone 605/367-5300, fax 605/367-5308. Ref. #SD0831536

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Informatica Corporation, a growing high tech company that produces datamarts, has openings at all levels for SW Engineers, SW/QA Engineers, D-Base Admin, Prof. Services Consultants, Tech Support Engineers. Openings at the following locations: Palo Alto, CA, Los Angeles, CA, Plano, TX, Iselin, NJ, New York, NY, Washington D.C., Schaumberg, IL, Atlanta, GA, Boston, MA. Send/email resumes to: Informatica, Attn: P Saadeh, 3350 W Bayshore Rd, Palo Alto, CA 94303, email psaadeh@informatica.com EOE

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Some positions require a Bachelors Degree, others Masters Degree. Equivalent degree and experience is also accepted. Exc. Pay & Brits. Mail resume to: sastov@liquidrs.com

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Privacy

mandates "opt-in" rules — requiring that companies get explicit permission from consumers before they share information about them, said TowerGroup analyst Christine Pratt.

In preparation for the July 1 deadline, some large financial services firms spent millions of dollars on customer mailings and revamped databases. They're also required to prove that their security systems are robust enough to prevent the unauthorized disclosure of private information.

Bank One Corp. in Chicago had to consolidate more than 40 databases into one to ensure that privacy could be maintained across all affiliated companies, said spokesman Stan Lata. The total cost to the bank was in the "tens of millions of dollars," he said.

Providian Financial Corp. recently completed the compilation of a privacy database that contains responses from mailings to 17 million customers.

The bank spent 18 months and "several million of dollars" updating and consolidating almost a dozen databases and updating software, Providian officials said. Now the challenge is to create relational databases that will automatically track how information is shared and who can solicit customers.

Mark Loewenthal, chief privacy officer at San Francisco-based Providian, said it will take months to "spec out" the project, tying up "significant amounts of the business and systems [department's] time."

Looming larger than clear-cut privacy and security provisions of federal law is a push in Congress to amend the federal legislation with a tougher set of rules.

Sen. Paul S. Sarbanes (D-Md.), chairman of the Senate Banking Committee, has submitted a bill that would force financial services firms to give customers an opt-out option even when seeking to share their financial information with affiliated firms.

Sarbanes' bill, called the Financial Information Privacy Protection Act of 2001, would also require an opt-in option for consumers when companies share some types of sensitive financial or medical information with either an affiliated or unaffiliated third party.

According to Patrick F. Sullivan, vice president of privacy and information policy at Waltham, Mass.-based security provider Guardent Inc., an opt-in policy would be far more expensive, not only because companies would have more information to protect, but also because "you've got to start building your marketing lists all over again."

Moreover, the new legislation doesn't limit the ability of states to adopt their own, more stringent regulations.

"The more variations you get from states, the more complex it is for business to try to comply," Loewenthal said.

JUST THE FACTS

It's the Law

The Financial Services Modernization Act:

- Requires an opportunity for customers to opt out of sharing personal information with nonaffiliated third parties
- Repeals Glass-Steagall Act restrictions on banks affiliating with securities firms
- Requires a clear disclosure by all financial institutions of their privacy policies

MOREONLINE

For *Computerworld*'s complete coverage of privacy issues, click to www.computerworld.com/privacy

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Microsoft

design remains to be determined. The appeals court remanded the case on June 28 to a lower court, and there is also the prospect of a settlement. But the appeals court decision, which upheld the finding that Microsoft used illegal means to maintain its monopoly status, raises some interesting possibilities for end users.

Testimony by one large end user, Seattle-based The Boeing Co., played a key role in the government's contention that integration hurt consumer choice. The appeals court ruled that Microsoft's commingling of Internet Explorer code with the operating system is anticompetitive. The court said that "the commingling deters OEMs from preinstalling rival browsers."

A Boeing official, in a videotaped deposition and in documents, testified in 1998 that the aircraft company had standardized on Netscape Communications Corp.'s browser but said the integration between Internet Explorer and the operating system couldn't be disabled. Supporting two browsers would increase costs, a Boeing official said. The Boeing official who testified declined to comment.

Legal experts say the concerns raised by the court may ultimately be applied to media, instant messaging and other applications Microsoft is integrating with the Windows XP operating system, due in October. "It's not beyond the pale that they might have to componentize XP to some extent," said Donald Falk, an antitrust attorney at Mayer, Brown & Platt in Palo Alto, Calif.

For instance, if Microsoft is ultimately required to enable PC makers to remove some applications from the operating system or add others to it, end users may find it possible to purchase a Windows system more to their liking.

Mitch Blackburn, vice president of operations at rental car firm ANC Rental Corp. in Fort Lauderdale, Fla., is one such end user.

Because of the system demands of the Windows operating system, ANC has "to buy a pretty large workstation with lots of memory, fast processors, lots of disk," said Blackburn. If he could purchase a "light" version, "that would be really advantageous," he said. ANC currently has more than 12,000 workstations.

But end users also said it would be difficult to begin switching to non-Microsoft products.

Amy Courter, vice president of IT at marketing firm Valassis Communications Inc. in Livonia, Mich., said it's unlikely the company would move from Internet Explorer to Netscape because the company hadn't completed the investment, training and testing. But she still believes that a componentized operating system would be beneficial. Just "the thought of competition sometimes creates better products," she said.

Even if PC makers gain flexibility in swapping out a Microsoft application with that of another vendor, they may "choose not to take it because of the support cost issue," said Rob Enderle, an analyst at Cambridge, Mass.-based Giga Information Group Inc. "It will typically cost them more to support a nonintegrated offering than an integrated offering," he said, noting that IT managers could therefore still be left with few options.

Microsoft, for its part, insisted the decision won't affect its product design.

It's also possible that the appeals court decision could prompt lawsuits from rival vendors challenging Microsoft's operating system design, said Hillard Sterling, an antitrust attorney at Gordon & Glickson LLC in Chicago. "It's going to take a long legal battle to apply these restrictions to XP applications," he said.

MOREONLINE

For *Computerworld*'s coverage of Microsoft's legal issues, click to www.computerworld.com/msdoj

Motion to Settle?

Microsoft and the government are expected to make a third attempt at a settlement before the case returns to a lower court, as ordered by the U.S. Court of Appeals, for a new hearing on remedies and the tying issue. Possible settlement points:

BREAKUP Microsoft is adamantly opposed to a breakup. States may still push for it, but a conduct remedy was discussed in earlier settlement talks. The main problem with a conduct remedy, say critics, is the necessary ongoing government oversight.

PRICING The company could be required to provide uniform terms for Windows operating system products to PC makers.

APIs The government is likely to seek guarantees that application programming interfaces are made available to vendors and PC makers as soon as they are in use by Microsoft's own software developers.

START-UP PC makers may get flexibility in the applications they can offer and the power to control start-up screens.

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BPA ABM

FRANK HAYES/FRANKLY SPEAKING

Big, Ugly Security

NO WONDER WE HAVE security problems. For decades, we've treated security as an afterthought, an add-on, a kludge. First we design the business system. Then we assemble the technology and build the applications and string the wires. And then — because it's a check-off item we have to complete before the big bosses will sign off on the project — we throw in some security.

That's how we've done it for 40 years, since the days when IT system security meant adding a good lock on the mainframe room's door.

It's still that way today. Now, instead of a lock, security means passwords and firewalls and utilities that sound the alarm when they detect unauthorized probing of ports or access to accounts.

But security is still the last thing we cobble together and bolt on. And as a result, it's usually the messiest, ugliest, most user-unfriendly part of our systems.

Is it any surprise that for almost everyone else in corporate life, our cobbled-together, bolted-on security is first and foremost an inconvenience, an irritation, an annoyance?

Permissions, virus filters, limited data access, digital certificates, encryption and piles of passwords — they're all pretty much the same to users. They're a pain. They chew up valuable time. They get in the way.

So what do most users do when faced with this in-their-face, time-and-effort-consuming security? They look for ways around it.

They thumbtack lists of passwords to their cubicle walls. They leave their PCs on when they're away so they won't have to log in again. They turn off filters, turn on scripting and swap unauthorized tricks and shortcuts for bypassing security.

So, of course, our security problems just keep getting worse. It's not just crackers and spies and assorted bad guys who are finding ways around our security. It's our users, too.

Sure, they're wrong to undercut our security measures. But it's our own fault.

As long as IT people treat security as an afterthought, we'll keep on building systems where ugly, inelegant security gets in the way. And if it's in the way, users will fight it, work around it, undercut it.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

The best solution — the one we can't afford, of course — would be to rebuild everything, our entire IT infrastructure, applications, the works, with security designed and built into it down to the core.

We'll need that, and maybe sooner rather than later. With supply chains and B2B and Web commerce, our systems are more exposed than ever. But rebuilding our world with single sign-on, highly secure databases, IP Version 6 networks, smart-card authentication and the other technologies required will take time. Learning to use them effectively will take longer. Getting budget approval could take forever.

But we don't have to wait for that. We can start rethinking security today. And one good place to begin is to take some of the sting out of security for users.

Maybe we can get rid of those tacked-up lists of passwords by cutting down the number of different passwords we assign each user. If we can't do real single sign-on today, maybe we can whip up some scripts that let users type one password once, and let the machine do the rest of the work.

Maybe we can adjust how PCs log on to networks and applications when they start up, so users won't be so tempted to leave them running unattended.

Maybe we can cut down on unauthorized shortcuts around security by building some secure tunnels that let users do what they need easily, without compromising security or breaking our rules.

Yes, those are more security kludges. But at least they're *elegant* kludges that make security a little less obnoxious and a little more convenient for users.

And just maybe that will start IT down the path of treating security as something more than an afterthought. ◗

SHARK TANK

USER TELLS IT pilot fish that Microsoft Word is adding extra text to her documents. Sure enough, a short document on her screen comes out of the printer with extra text each time. Reinstalling the software doesn't help. Fish checks the printer and discovers user is recycling paper that's already been printed on one side – all bearing the same text. Solution: blank paper.

ENGINEER WANTS a particular new application to be installed on one of the company's Windows NT 4.0 servers. We're about to upgrade to Windows 2000 – is this software compliant? pilot fish asks. "Just because you like 2000 doesn't mean we have to go to it," engineer snarls. "Why can't we use NT 5 or NT 6, or even spend the extra for NT 7? Be different," he tells fish, "and stick with NT."

AFTER HOSPITAL upgrades one low-tech doctor from a terminal to a PC, IT pilot fish gets a call from his secretary asking for a larger terminal. "He needs it for his bulletin board," she explains. Fish is curious – the hospital has no bulletin-board system, and Dr. Pencil-and-Paper isn't the type to set one up. An office visit clears it up: The doc's PC isn't even turned on, but his monitor is covered with Post-it Notes – and he's run out of space.

SIGN OF THE TIMES Laser printer at a nursing home gets a paper jam. Pilot fish discovers the problem right away: a stack of continuous-feed paper stuck in the roller slot. "This printer uses single sheets," fish tells user. "Yes, I know," she says, "but I was printing a banner."

PILOT FISH is trying to upgrade the e-mail system. Users are supposed to log off by noon Friday, but at 2 p.m., some are still logged on. "No, I've been out of my e-mail since noon," swears one user. OK, says fish, maybe the system retained your connection. Can you reboot? "Sure," says user, "just let me finish sending this e-mail."

Send e-mail my way: **sharky@computerworld.com**. You get a sharp Shark shirt if your true tale of IT life sees print – or if it shows up in the daily feed at *computerworld.com/sharky*.

The 5th Wave

sas

INDUSTRY POSEURS EXPOSED.

CODERNAUTS DISCOVER
WEB SERVICES THAT ACTUALLY WORK.

★ *IBM SOFTWARE WITNESSED ENABLING WEB SERVICES.* ★

SILICON VALLEY, CA– A landmark discovery was announced that may well change the course of business. Web services, as enabled by IBM software and seen in action, provide companies with new ways to make money without spending it.

A lot of hype surrounds Web services, which contain incredible promise. Yet, nf all the people talking about Web services, IBM has the software and experience to deliver on that promise today.

TWO PROGRAMMERS FROM A PARALLEL UNIVERSE FOUND THAT IBM SOFTWARE CAN HELP COMPANIES UTILIZE WEB SERVICES TODAY. TO INCREASE THEIR REVENUES.

IBM SOFTWARE SUPPORTS OPEN WEB SERVICE STANDARDS. UDDI, SOAP, WSDL, XML.

Web services utilize industry standards to deploy and integrate applications across the Internet, intranets and extranets.

IT'S A DIFFERENT KIND OF WORLD. YOU NEED A DIFFERENT KIND OF SOFTWARE.

Web services make it easy to adapt systems to changing business needs. Flexible applications using Web services can now be implemented by the IBM software portfolio: WebSphere,® Lotus,® DB2® and Tivoli.®

With their operations enabled by Web services, IT managers can now let others access and use their company's business processes as easily as people download Web pages. The benefits: low cost of development and wider deployment of applications, increasing competitive advantage.

CODERNAUTS LEARNED MORE ONLINE.

For instance, a moving company facing the problem of keeping its trucks full during the entire cycle of the transport, as in return trips during cross-country moves, can now utilize Web services enabled by IBM software to seamlessly locate, book and manage new customers.

Another case is a travel, leisure and entertainment company. The challenge? Link hundreds of applications together to form a one-stop Web portal that provides relevant information and offerings to customers. The result? Expanded services at dramatically reduced costs.

Presently, there are a number of software vendors trying to sell their proprietary technologies as ways to enable Web services.

WEB SERVICES HELP APPLICATIONS COMMUNICATE MORE EFFECTIVELY.

Yet IBM is a proven provider who is delivering a truly open e-business software environment to exploit your existing applications. Today.

Software that enables Web services, known as IBM software, was discovered by two programmers from a parallel universe. "We came looking for better software," said one. "And this is definitely it." For case studies, white papers and an announcement highlights video, visit us at **ibm.com**/webservices/today

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